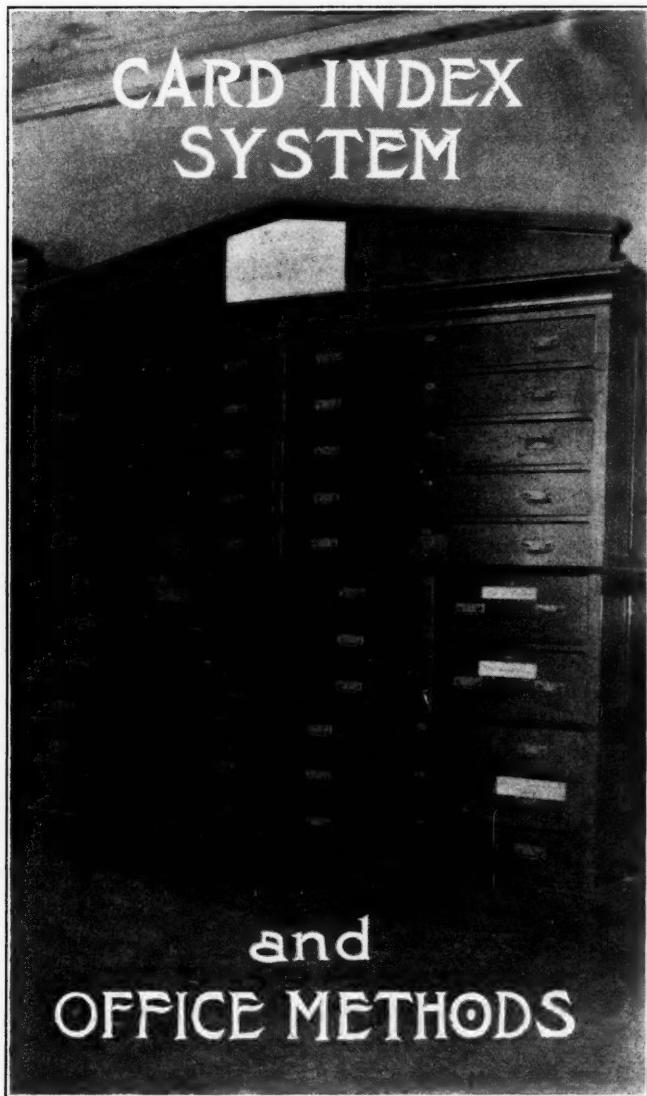


# Municipal Journal And Engineer

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No. 4



MAP CHEST

By JOHN McNEAL, M. Am. Soc. C. E.  
City Engineer, of Easton, Pa.

THE method of indexing maps by the card system has greatly facilitated office work in the Engineering Department of the City of Easton, Pa., making all data readily accessible when needed. As the data in this office are not of a complicated nature, the card system is a simple one.

All maps and profiles are filed in a chest made for this purpose, a photograph of which is herewith shown. This chest is 8 feet 4 inches long by 3 feet 3 inches deep and 6 feet 8 inches high. There are twenty-one drawers in the chest, each one being numbered.

Sixteen drawers are 47 inches in width and 5 inches high. In these are filed maps and profiles of various sizes. Two drawers are 22 inches wide and 8 inches high. These are used for filing note books, etc. Three drawers are 72 inches wide and 5 inches high, which are used for filing very wide maps.

The maps are arranged, as nearly as possible, according to wards, maps from the same ward being placed in the same drawers. Each map is marked with the number of drawer and number of the map in the drawer. In some cases, the drawers are also divided into alphabetical sections, in which case the section letter is also marked on the map.

The last number in each drawer is recorded in order to continue the numbering as maps are added. A large, changeable rubber stamp has been used for marking maps. These numbers begin at 100 in order that the map number will not conflict with the numbers on the drawers.

The index cards are of standard size, 3 inches by 5 inches. Three different colors are used, salmon, white and green. The salmon-colored cards are used for plans of streets, etc., white for profiles of streets, etc., and green for sewer records. Each card is marked as shown in the reproductions below.

A separate filing cabinet, a photograph of which is also shown herewith, is used for filing Contract Bids, Legal Opinions, Claims for Damage, Bonds, Warrants of Surveys, Tests of Materials, Agreements, etc.

In connection with all street and sewer repairs, daily reports are made of itemized accounts of cost. These reports are returned on ordinary time slips, showing time of foreman, laborers, and all material used in any branch of the work.

DRAWER NO. 5	MAP No. 112	TITLE	DATE
		Concrete Curb, Gutter and Sidewalk Plan and Cross Section	
			McNeal
			1907

SALMON CARD. STREET PLANS

**WHITE CARD. STREET PROFILES**

On macadam and street repairs, daily reports are made of loads of stone, sprinklers of water, hours of rolling with road rollers, etc. From these daily reports are prepared an itemized account of cost of all work and detail cost per square yard.

Daily accounts and ledger accounts are also kept of all work, showing the charges made against each individual appropriation.

The cost of installing the card index system was as follows:

**GREEN CARD. SEWER RECORDS**

900 index cards, with printing.....	\$ 3.80
3 sets of alphabets.....	.60
Double oak card index cabinet.....	5.00
Labor, indexing maps, etc.: draftsman, the equivalent of about one month's continuous work.....	75.00

Total cost.....\$84.40

The cost of the map chest was approximately \$200. The filing cabinet could be purchased for about \$50.

The indexing system was worked up during the winter months by the regular office force during spare time, when it did not interfere with their work. One man, however, could have done it by working continuously for one month.

## GAS POISONING IN WASHINGTON

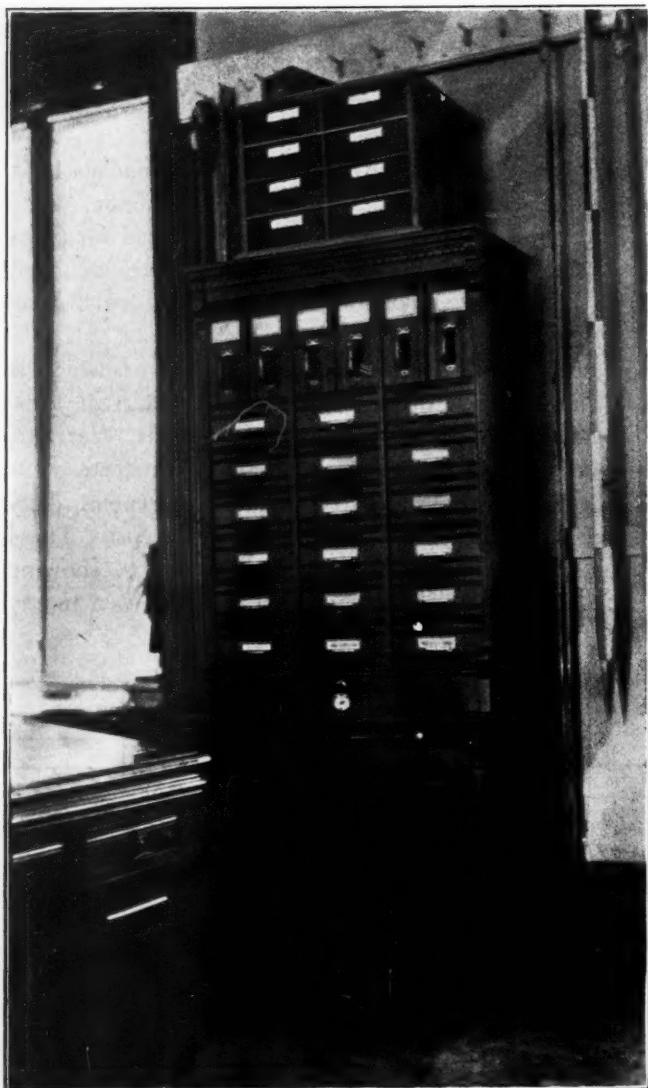
THE press of Washington, D. C., has given much space for several weeks past to a consideration of the poisonous nature of the water gas furnished there, the immediate cause of the agitation being the death of three persons due to a leaky gas stove. Analyses of Washington gas showed that it contained carbon monoxide in percentages which varied within ten days between 21.9 and 30.5 per cent. In Massachusetts, during the 14 years following the introduction of water gas, there were 459 deaths from gas poisoning as compared with 8 deaths in the previous 13 years; and in 1885 the Massachusetts Legislature enacted a law against distributing gas containing more than 10 per cent. of carbon monoxide. Congress has been requested to enact a similar law for Washington. The Massachusetts law was, however, repealed in 1890, and about one-half of the gas plants of that State now furnish enriched water gas. Coal gas is poisonous, although not quite so much so as water gas, and it would seem even more desirable to enforce laws against defective gas appliances than against the manufacture of water gas.

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## SPREADING SAND ON SLIPPERY PAVEMENTS

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IT IS THE PRACTICE IN GERMANY TO SPREAD SAND OVER ASPHALT AND OTHER SMOOTH PAVEMENTS WHEN THESE ARE SLIPPERY BECAUSE OF BEING WET OR FROZEN, AND THIS IS DONE ALMOST EXCLUSIVELY BY HAND. THE STREET CLEANING DEPARTMENT OF MAGDEBURG HAS RECENTLY ADOPTED, AFTER A SERIES OF EXPERIMENTS, A NEW SAND STREWING WAGON DEVISED BY HERMANN FRICKE OF THAT CITY. THE WAGON SPREADS RAPIDLY AN EVEN LAYER OF SAND OR GRAVEL OVER A WIDTH OF FROM 20 TO 50 FEET, THE AMOUNT AND WIDTH BEING UNDER THE CONTROL OF THE DRIVER.



#### FILING CABINET

## SEWAGE PURIFICATION ABROAD

### Conditions in 1908 in England and Germany—Sewage Farming—Contact Filters—Sprinkling Filters—Preliminary Treatment—Distributors Preferred to Nozzles

IN a paper before the Boston Society of Civil Engineers, and printed in the Journal of the Association of Engineering Societies, Mr. H. W. Clark, Chief Chemist of the State Board of Health of Massachusetts, summarized the information obtained concerning sewage purification in England and Germany obtained by him during a trip made in the summer of 1908. He found to be especially noticeable in England the number and proximity of such plants; also the variety of methods employed, frequently by one municipality. He also found different methods employed in operating similar plants at different places, and a curious lack of information at one plant as to what is being done at a neighboring one. The solidity and cost of plants which are in a sense as yet experimental, impressed him; also the fact that sludge disposal is still the chief problem. He found that chemical precipitation still plays a considerable part in both old and new sewage plants; principally as a preliminary treatment, however, although there are many large plants where this forms the sole method of purification. The curious mixture of methods indicates that sewage purification in England is still in an experimental stage, and that considerable amounts of money have been wasted in unwise or hasty adoption of new methods. The Germans are moving more slowly; and, while they are carrying on some experimental work, in the main are profiting by English work and thus avoiding costly mistakes.

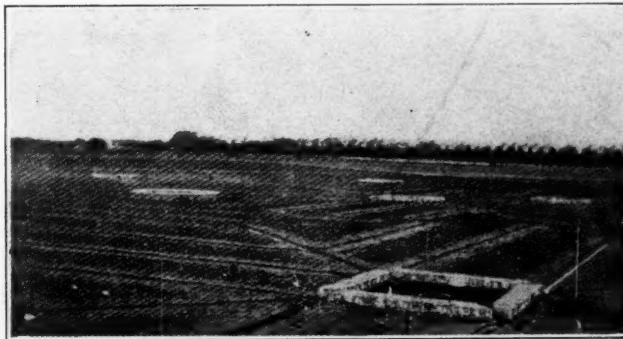
#### SEWAGE FARMING

Mr. Clark discussed many of the English and German plants, grouping them according to the method of treatment. He first considered sewage farming, which is still in successful use in many places, taking the Wolverhampton plant as representative. This city has a population of 102,000, and an ordinary sewage flow of three million gallons per day. This is first treated with lime and, after settling in tanks, is turned onto a farm of 600 acres of which 450 are used for this purpose. The sludge is pressed into cakes and is burned or used for filling. This farm is under-drained with tile. Like so many English cities, this one is sewered on the combined system and the storm water is brought to the disposal plant, where it is turned into a reservoir 11 acres in area with three-foot embankments, in which it slowly filters away through the gravelly bottom. The effluent from the works is equal to that of the best Massachusetts sand filters. Up to the end of March, 1908, the works had cost \$750,000, or about \$7.50 per head of population. The cost of operation for the year previous, less the profit from the farm, was \$26,000, and the interest and sinking fund payment would add about \$30,000 to this. The average rate of filtration is about 8,000 gallons per acre per day. This gives a cost, including fixed expenses, of about \$49 per million gallons treated.

Eight farms were reported upon in the recent report of the Royal Commission, and the cost of purification by these varied from a little less than \$6 to about \$77. The Commission stated in its conclusions that where land can be bought for not over \$500 per acre land treatment is probably, other things being equal, the cheapest method of purification. With suitable land it certainly gives the best results. Mr. Clark believes that much of the criticism of English sewage farms has been due to the fact that their soil, while well adapted to farming, is poorly adapted to sewage purification.

#### CONTACT FILTERS

Contact filters were found to be not as popular as a few years ago; although large ones are in operation at many places in England, notably at Manchester, and new ones are being constructed at Sheffield on a large scale. At Manchester are 46 acres of contact filters of heavy concrete construction, with coke or clinker as the filtering material. At present the authorities there are experimenting with a method of operating these as percolating filters, the sewage being flushed over the surface every 15 minutes without closing the outlets in any way, it being distributed over the surface of the



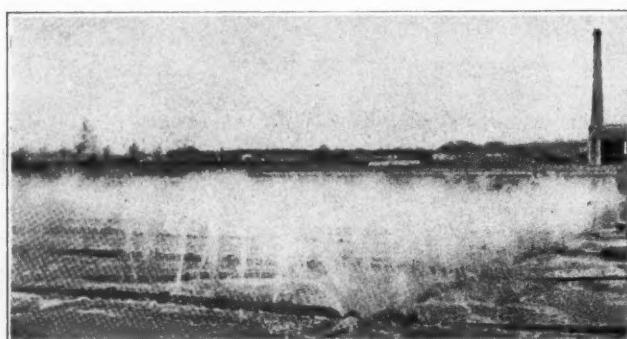
MANCHESTER CONTACT FILTERS CHANGED TO PERCOLATING FILTERS

filters by means of surface channels radiating from concrete chambers. Thirty-five million gallons of sewage is the average dry weather flow of the Manchester plant. This passes through large fat separators and septic tanks before going to the filters. Last summer all the contact filters were being cleaned, the filtering material being removed, washed and replaced. About 350 tons were being removed, cleaned and replaced daily at the time of Mr. Clark's visit, the cost being about 15 cents per ton. He estimates the cost of operating the plant as about \$9 per million gallons of sewage treated. One hundred and fifty men are employed. The effluent is unsatisfactory, and protests are being constantly sent to the authorities, as a result of which two additional filters are now being constructed which will be thirty acres in area. No chemicals are used at Manchester, and at other English contact filters where chemicals are employed much better effluents are obtained. He believes that it would be impossible to obtain successful results with contact filters only, even with double filtration.

In spite of the poor results at Manchester, Sheffield, with a population of 450,000, is constructing contact filters. Since 1886 chemical treatment has been employed here, using lime. In the new scheme chemical

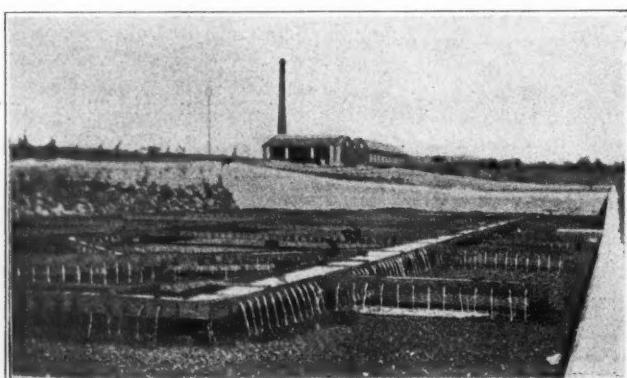
treatment will be omitted and sixteen settling tanks are being constructed, together with thirty acres of contact beds in one-half-acre sections and sixteen acres of storm water beds in acre sections. All these are solidly built with brick walls and 6-inch concrete bottoms. The beds are to contain four feet of clinker over the under drains; the clinker being 3 to 6 inches in diameter at the bottom and becoming finer toward the top, the upper 6 inches to contain clinker not more than  $\frac{1}{4}$  to  $\frac{3}{8}$  inch diameter. Sewage will enter each bed through a chamber in its center from which it will overflow to a second circular chamber 15 feet in diameter, and from this will pass over the surface of the beds in channels formed of fine coke. These filters follow ten years of experiment with contact filters, treating one million gallons of sewage daily. Although the filters are in hard pan and clay, the local government board insists upon the apparently needless expense of a 6-inch concrete bottom. The cost of the entire plant is estimated at \$1,500,000, or about \$60,000 per million gallons daily capacity.

At other cities Mr. Clark saw contact filters which were simply excavations in the earth with earth dividing walls. At Blackburn the sewage enters through tile



SPRINKLING PRIMARY CONTACT FILTERS AT BLACKBURN

pipe laid with close joints on the surface of the filter, in the top of which pipe are fine slits of about  $\frac{1}{8}$ -inch wide and 1 inch long. The sewage, being under a head, is sprayed from three to five feet into the air. It is treated by chemicals before passing to this filter and



SECONDARY CONTACT FILTERS AT BLACKBURN

the effluent is treated upon a secondary bed; the effluent from this secondary bed being clear and odorless at the time of Mr. Clark's visit. These contact beds, with an area of four acres, cost \$100,000.

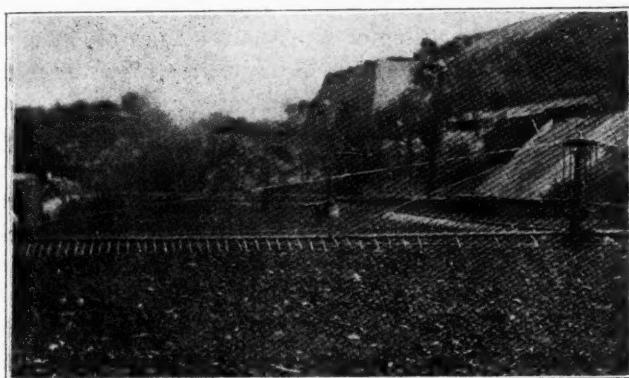
#### SPRINKLING FILTERS

Of sprinkling filters he saw a number both in England and Germany, of which he described those at Heywood, Blackburn, Chesterfield, Hanley and Birmingham, as being typical plants. Heywood has a population of 27,000 and an average daily flow of 1,100,000 gallons of sewage. The sewage is screened, then treated with chemicals, passed through settling and septic tanks and then to sprinkling filters. About four grains of alumino-ferric per gallon is applied, the manager stating his opinion that the use of chemicals was cheaper than removing, cleaning and washing the filter material. The screens were of the typical English type with automatic rake and brush cleaners moved by power, which was obtained from a garbage disposal plant near by. A most complicated and ingenious automatic apparatus changes the flow of sewage from one bed to another and is said to work fairly well. Automatic apparatus is common in England at many of the sewage works, but in a number of them is evidently causing much trouble. There are twelve sprinkling filters at Heywood, 60 feet in diameter and 8 feet deep. The enclosing walls are of brick, with pigeon holes, 15 inches thick at the bottom and 9 inches at the top, with heavy concrete bases and buttresses. They are filled with pieces of clinker of 5 to 6 inches diameter. The sewage is distributed by a revolving type of distributor. Each filter generally operates an hour and then rests an hour, the usual rate of filtration being 1,400,000 gallons per acre per day. The effluent passes through a settling basin holding about four hours' flow and leaves this over baffles. When visited, the effluent was remarkably good, much better in appearance than the river which it entered. Each filter, of about 1-15 of an acre in area, cost \$29,000 complete with sprinkling apparatus. The total cost for chemical precipitation plant, screens, settling tanks, etc., was \$325,000. The working cost is \$10.50 per million gallons treated.

Blackburn has 100,000 population and an average daily sewage flow of 5,000,000 gallons. Part of this is treated on the old sewage farm, but new works are partly built and partly under construction. These consist of screens similar to those at Heywood operated by a water wheel set in the sewage channel. About one-half the sewage enters large septic tanks; the remainder is treated with five grains of alumino-ferric per gallon, then passes through a mixing channel to twelve sedimentation tanks which hold about five million gallons. The alumino-ferric is made at the plant from shale quarried near by and costs about \$6.70 per ton. From the tanks part of the sewage passes to contact and part to sprinkling filters. There are twenty-four of the latter, each 80 feet in diameter and 9 feet deep. The entire bottoms of these are practically covered with under-drains of 12-inch semi-circular pipe in three-foot lengths. The filtering material consists of large pieces of destructor clinker at the bottom to the height of one foot, above which it consists of broken stone, coarse at the bottom but diminishing to one-half inch pieces at the top. The effluent from these passes over a weir into two Dortmund-shaped tanks 28 feet deep, and from these into the river. The final

effluent was putrescible and the Dortmund tanks were covered with putrefying scum. Mr. Clark considered the poor result to be due to too much fine material at the top of the filters and close construction of the retaining walls. Revolving distributors were used. The cost of the settling tanks, mixing house, sludge pressing house and machinery was \$230,000; the contact beds, \$100,000; septic tanks, Dortmund tanks and sprinkling filters, \$112,000. The sprinkling filters cost \$5,000 each, or about \$42,000 per acre.

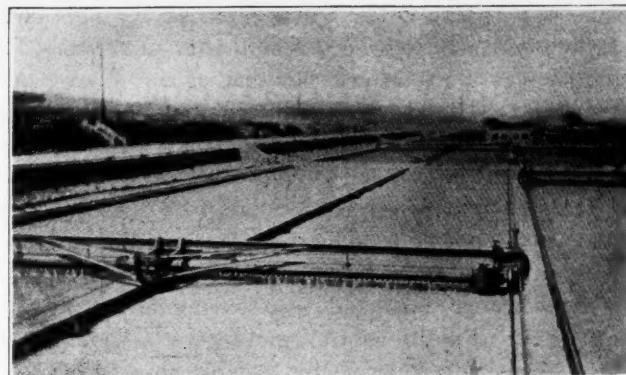
The Chesterfield plant handled about 1,000,000 gallons of sewage per day and produced an effluent fully equal to that at Heywood, although much more simply and cheaply constructed. Nominally, there are seventeen circular filter beds, but in reality it is all one bed without elaborate retaining walls or a concrete bottom.



UNPATENTED BARKER WHEEL TYPE OF DISTRIBUTOR

These beds vary from five to eight feet in depth. The distributors are of an unpatented rotary type, consisting simply of pipe arms containing orifices along one side and suspended by guys to the center support; these arms varying from 45 to 52 feet in length from center to outside. The beds cost about \$2,125 each or about \$12,500 per acre, this including preparation of site. No chemicals are used here, the sewage being simply screened and then passed through settling tanks of 700,000 gallons capacity, which had formerly been used as septic tanks but are now cleaned out every three or four weeks. The filters have been in operation six years and show no signs of clogging. The filter material is largely destructor clinker from 6 inches to  $\frac{3}{8}$  inch in diameter. The total annual cost of operation, including pumping, is about \$3,000 or about \$9 per million gallons treated.

The plant at Hanley seems to be unnecessarily expensive, but is most striking in appearance. The average daily sewage flow is about two million gallons which, after passing through the usual screens and through detritus tanks of 250,000 gallons capacity, enters septic tanks of five million gallons capacity. From these it passes to sprinkling filters, of which there are to be  $9\frac{1}{2}$  acres, which is divided into sections 200 feet long by 50 to 60 feet wide. The beds have handsome brick walls and glazed tiles are used in many parts. The subdrains are composed of semi-circular tiles covered with square tiles of special construction furnished with slots. The filtering material, five feet deep, is of pieces  $\frac{3}{8}$  to  $\frac{1}{2}$ -inch in diameter. The distributors are



HANLEY DISTRIBUTOR AND FILTER BEDS

heavy iron bridge-like structures spanning each bed and traveling on tracks on the sidewalls. This distributor is operated by an endless wire rope from a power house at the end of each filter, each containing a  $1\frac{1}{2}$ -horsepower motor operated by the borough electric plant. These move the distributors slowly from one end of the filter to the other; an automatic device in the power house reversing the motion as the distributor reaches either end of the filter. Just outside of each side rail is a trough into which the sewage flows and from which it is fed to the distributor by a siphon carried by the same. The distributor carries a pipe furnished with many small openings from which the sewage falls upon dash plates which sprinkle it onto the filter. By an automatic arrangement the distributor is made to discharge sewage when traveling in one direction only. The applied sewage is practically free from suspended matter. The effluent was practically as clear as that from a good sand filter. The rate of filtration is said to average 750,000 gallons per day. The filters cost \$27,500 per acre and the sprinkling apparatus \$6,000 per acre. The estimated cost of the completed plant was about \$42,000 per million gallons, but it is believed that it will ultimately reach \$55,000.

Practically all of the Birmingham sewage is passed through sprinkling filters, having first passed through detritus tanks of five million gallons capacity and septic tanks of seven million gallons capacity. Tile under-drains cover the entire bottoms of the filters. Those in the four acres near the septic tanks contain 6 feet in depth of clinker with a few inches of broken stone on the surface; while others five miles below are entirely of broken stone from  $\frac{3}{4}$  inch to 2 inches in diameter. Sewage is applied by the Birmingham type of sprinkling nozzles. The beds are one, two and three acres in area and have heavy side walls. They cost



CLEANING NOZZLES, BIRMINGHAM SPRINKLING FILTERS

\$30,000 per acre. The sewage passes through large Dortmund tanks both before and after filtration. The effluent was much inferior to that at the other places described. The rate of operation is practically 900,000 gallons per day. The cost of maintenance is about \$40 per million gallons.

At Wilmersdorf, Germany, are fifty-six sprinkling filters each 60 feet in diameter, constructed entirely of coke, including the retaining walls. The sewage passes through septic tanks and then to the filters, then to settling basins and finally to sand filters. About 5,000,000 gallons is treated daily and is brought eighteen miles to the disposal area. The plant cost about \$500,000. The effluent was dark but odorless.

#### PRELIMINARY TREATMENT

Every plant visited had a more or less expensive system of preliminary treatment, generally precipitation with alumino-ferric or lime. Screens and settling tanks also were quite general. Sludge was in some places pressed; at others turned into pools and drained until dry enough to handle, when it was removed by farmers or dumped into depressions. At York is a field of sludge nine acres in area and 9 to 14 feet deep, the accumulation of five years. In Germany most efficient screening plants were found, double and triple sets of screens being not uncommon.

The general opinion abroad was that septic tanks do not destroy more than 10 to 25 per cent. of the organic matter entering them. At many septic tank installations the detritus tanks collect a large part of the organic matter, said at Birmingham to be more than one-half. Mr. Clark believes from experience at home and abroad that sludge from septic tanks may or may not be offensive, depending upon the character of the sewage and method of operation; and that well-digested septic sludge generally has much less odor than sludge from detritus or chemical precipitation tanks, and generally less than that from settling tanks.

#### GENERAL CONCLUSIONS

Nearly all the English sprinkling filters are operated intermittently; the frequency of intermission varying from 6 minutes at Hanley to 12 hours at other places. In several plants the change of flow from one sprinkler to another was by automatic devices, a considerable number of which were found out of order. At most plants automatic distributors are in use, generally of the Barker wheel type or the Fiddian, or modifications of these; Birmingham and Salford being the only two large plants using sprinkling nozzles. Although originally opposed to distributors, Mr. Clark became finally convinced that, under English conditions at least, they are far superior to nozzles, the chief reason for this being that it is possible to distribute sewage much more uniformly over the area by moving distributors. He believes that even though it might be necessary in this country to cover the filters to avoid the freezing up of the apparatus, this may be found to be advisable. The head required for the revolving sprinklers is not great, 4 inches being found sufficient in one plant. He recommends the adoption of the term "intermittent-continu-

ous" as the best designation for these filters, stating that while they are all percolating, a sand filter is the same, and that some contact filters have the sewage sprinkled upon their surface.

As to filtering material, he found that in contact filters coke and clinker give better results than broken stone, and the finer the material the better the purification. The usefulness of contact filters he believes to be largely as a substitute for chemical precipitation as preliminary treatment after sedimentation. In sprinkling filters he found material used from  $\frac{1}{4}$  inch in diameter to 6 inches. The best results appear to be given where the material was of the same size throughout; and the finer and rougher the material the better the effluent.

It seems to be of the utmost importance that the liquid applied to contact and sprinkling filters be clear; and for this reason chemical precipitation is preferred in England to settling or septic tanks, since the effluents from the latter are said to contain three times as much suspended matter as from the former. On the other hand, the Royal Commission estimates that for a given volume of sewage nearly three times as much land will be required to bury the sludge from chemical treatment as from septic tank treatment, and that the cost of labor will be twice as great. The Commission estimates the total cost, including fixed charges, per million gallons of sewage as \$17 for chemical precipitation and \$8.50 for septic tank treatment; but that the rate of operating trickling and other filters may be twice as great with chemical precipitation effluent as with septic effluent.

The average English sewage was found by Mr. Clark to be not much if any stronger than that treated at the Lawrence Experiment Station in Massachusetts; the smaller per capita water consumption being offset, in some places at least, by the continued use of the pail system.

#### HOT AIR BLAST FOR ASPHALT REPAIRS

THE city of Ft. Wayne, Ind., recently received bids for repairs and patches for nine streets of asphalt paving which were laid in 1898 under ten-year guarantee by the Alcatraz Asphalt Company, which company refused to make final repairs. Bids for doing this work, the streets being grouped so as to give total areas per contract varying from 1,279 square yards to 14,921 square yards, varied from \$1.50 for the former to \$1.38 for the latter; this for standard mixture and not including any curb work. The same company which put in this bid offered to do the same work for 95 cents per square yard for large patches and \$1.50 per square yard for small patches which had to be cut out, if allowed to use the hot air blast. The hot flame blast was in common use a few years ago, but was considered to be very injurious to the pavement, and has been practically abandoned everywhere. If the hot air blast, while apparently offering most of its advantages, does not also possess its disadvantages, it would appear that asphalt repairing can be done much more cheaply by its use than by the other methods commonly employed.

## DECISION CONCERNING BITULITHIC

**Case of Warren Brothers Company against City of Owosso**  
**Decided by U. S. Circuit Court of Appeals in Favor**  
**of Former—City Must Pay Royalty**

IN the MUNICIPAL JOURNAL AND ENGINEER for March 4th of last year there was published a discussion of the decision handed down by the U. S. Circuit Court in a suit brought by Warren Brothers Company against the city of Owosso, Mich., for infringing the Warren pavement patents; which suit was defended by the Barber Asphalt Paving Company, which had constructed the pavement which was alleged to infringe upon said patent. As stated in that article as likely to occur, the case was carried to the Circuit Court of Appeals and a decision was handed down by this Court on Jan. 5th, and has just been made public.

In the decision the court considers whether the patent discloses a useful invention and whether the patentees have made public use of the same; it discusses the nature of the paving disclosed by the patent, and finally considers at length the existence of anticipation. Concerning the first point, the court states that the evidence tends to show that sheet asphalt flows into an uneven or humpy surface if the bituminous material be sufficiently soft to resist breaking in cold weather; while if sufficiently hard to resist this softening effect it goes to pieces under winter conditions and is unduly slippery. Also that bitulithic's "durability under traffic, its cleanliness, its noiselessness and freedom from undue slipperiness as compared to most other forms of pavement structure may be regarded as well established."

As to what is claimed by the patent, the court states that the most important principle disclosed is the discovery that the best condition for an asphaltic pavement is that the top or wearing surface of such pavement "must be made as dense, as free from voids as possible, and also stable and non-liable to displacement." It finds that the fundamental idea of the Warren patent is the inherent stability due to the arrangement of the mineral structure combining all sizes of stone from 2 inches down to sand, which inherent stability enables the use of a softer asphalt or bitumen than would otherwise be feasible. Such pavement the inventor believed would not be as slippery as asphalt; also less asphaltic material would be required and the cost consequently reduced.

In the matter of anticipation, several patents were brought forward by the defendant, but were said by the court to be worthy of little consideration as anticipatory; both because they were lacking in definite instruction as to the method of constructing the pavement, and because printed copies of the English patents were not on sale prior to the actual date of Warren's invention. Anticipation by actual construction in this country, however, is considered at some length.

In 1895, R. B. Stanton read a paper before the American Society of Civil Engineers describing the use of an asphaltic concrete for a reservoir lining. This suggested to the paving company the use of the same material for sidewalk paving and other purposes, and a series of ex-

periments were undertaken, using such material as a lining for canals, for a shed floor, a foundation for machinery, and a sidewalk. Of these the sidewalk was much the closest approximation to the Warren invention. It was laid in front of the office of the company, where it remained for a number of years. "The fact that the sidewalk was purely experimental as to the value of such a product for that purpose is indicated by several circumstances. . . . The presumption is strong that the experiment was not regarded as successful in teaching anything of value to the pavement art, for it was never repeated and no sidewalks were ever put down of that character, although that kind of work was a part of their business." Moreover, the pavement seemed to crack and prove unsuccessful, which fact raises grave doubts as to whether it was really built like the Warren pavements, since the latter have proved eminently successful. As further tending to show the failure of the company to recognize such a mixture as desirable, Mr. Clifford Richardson, Superintendent of Tests for the company, in 1897 applied for a patent in which he stated that experience had shown him that the best asphaltic pavements were those containing the smallest proportion of coarser-sized particles. Furthermore, even had this material been adopted for sidewalk construction it might not legally anticipate the use of the material for roadways, since the problems of wear in the two are entirely different; and "it has not been shown that anywhere had there been constructed a single rod of street pavement according to his plan prior to his invention. Under such circumstances, we cannot think the proof of anticipation strong enough to deprive him of his invention." The court therefore finds the patent valid.

As to infringement, Warren Brothers claimed the infringement of four claims of their patent, these being as follows:

In a street pavement, a bituminous mineral structure the mineral ingredients of which are fixed and of several grades, so graded as to give the structure an inherent stability.

A bituminous street pavement structure containing mixed mineral ingredients of such grades as to give the structure an inherent stability.

A street pavement wearing section composed of a mineral structure of inherent stability formed of several grades of material so proportioned as to have a per cent. of voids less than 21 per cent. of the whole, in combination with a comparatively soft bituminous binder filling said voids and rendering the whole permanent in nature and elastic and waterproof in character.

A street pavement structure composed of a mixture of mineral or wearing ingredients and a plastic binder, the space between the mineral ingredients being less than 21 per cent. of the whole, and the plastic binder occupying said space.

The court finds that the first two and the last of these claims were infringed; but that the third was not "as it is not shown that the defendants below employed the comparatively soft bitumen binder, made an element of that claim."

This case may still be carried to the Supreme Court. We are not informed as to the intentions of the defendants in this matter.

It appears that this decision covers a bituminous street pavement composed of mineral ingredients so mixed as

to give the structure an inherent stability. We do not understand that this patent covers a mixture of a bituminous substance with broken stone generally, when no attempt is made to grade the mixture so as to reduce the voids below 21 per cent.

#### DETECTING LEAKS IN WATER MAINS

THE Bureau of Water of the city of Buffalo, N. Y., maintains a "waste and leak gang" whose duty is to discover and prevent waste, leakage and water stealing. Most of the work of this gang is done in the early morning. A district which can be entirely shut off from the rest of the city is selected, including from two or three to a dozen blocks. A fire hose with a meter attached is then coupled up to two hydrants, one in and one outside of the shut-off district; thus compelling all the water used in the district to pass through the meter. If this should be an appreciable amount investigation is made as to where it is going.

The gang also examines the water fixtures in every house and factory and traces them back to the main; one object of this being to discover cases where water is being used through connections whose existence was unknown to the Water Department. In this way alone this investigation is said to save the city approximately \$50,000 a year.

In Hartford, Conn., the engineer of the Water Department, Ermon N. Peck, considers night surveys an unnecessary expense. In 1905 the whole city was covered about three times by two gangs working by ordinary methods, and leaks were found in 112 hydrants, 97 service pipes, 38 service pipes on premises and 6 leaks in mains. In 1906 the city was covered about four times and that portion of the system most susceptible to leaks about twice more, and during this year leaks were found in 80 hydrants, 68 service pipes, 18 service pipes on premises and 3 in mains. A part of the reduction in leaks between investigations was attributed to diminished electrolysis.

At the beginning of 1905 there was no comprehensive record of the location of the curb cocks on house services, and during the spring of that year a gang was put to work digging up and locating these. In the spring of 1907 (no report for a later date has yet been published, we believe) there were still thirty curb cocks which they had been unable to find, although much time and labor had been expended in the attempt.

#### ENGINEER'S SALARY AS A PAVING EXPENSE

THE City Attorney of Bridgeport, Conn., was recently asked by the Board appointed to appraise benefits and damages in connection with street paving, whether, in estimating the cost of paving a street for the purpose of assessment, the Board could include in such cost any part of the salary of the City Engineer or of any of his assistants. The Attorney has advised the Board not to include any such salary, since he finds the weight of authority to be that such items of expense ought not to be included in a paving assessment.

#### STREET RECORDS FOR SMALL CITIES

A CONVENIENT method of keeping records of street locations, grades, and the various buildings, pipes and appurtenances on and beneath the streets is by the use of loose leaf atlases; this method being especially desirable for small cities and villages where the card index system is unnecessary because of the comparatively small number of records. Such a system has been worked up for several municipalities by Messrs. Wilson and Wilson, civil and consulting engineers of Chicago. The general arrangement of these atlases as prepared by them is as follows:

Following the title page is an index page containing a map showing the city as it is at the time the atlas is made. This map is drawn to a scale as large as the size of the page will permit. It shows all streets, avenues and alleys, all roads, creeks, canals, parks, schools, churches and municipal buildings, and such other information as the scale of the map will permit of. On this map the city is divided into sections of four blocks each, which are outlined by bright red lines, each section containing a red number which refers to the page in the book where the said four blocks may be found platted to scale—generally 50 feet to one inch. These four-block section maps show all sewers, water and gas mains; the size of each, together with the grades of sewers and the house connections, manholes, flush tanks, lampholes and other appurtenances; fire hydrants, mail boxes, electric light wires, etc.; the correct location of all being given. These maps also show each lot with its dimensions and number, the house numbers and the dimensions and grades of all streets, alleys and sidewalks.

Whenever a change is made, such as additions, vacations, subdivisions or re-subdivisions on any block, lot, street or alley, any part affected by these changes is enclosed in a light red line containing a red letter which refers to a following page having the same number as this one together with the said letter. Should any further changes be made, said changes are again noted by a red line on these lettered pages, and shown on an additional lettered page. In this way the last supplemental sheet of the original sheet shows the present condition of the part which is platted thereon, while the preceding pages show the history of successive changes.

Each page contains information as to where the records concerning the street in question can be found in the county records, the date of survey, by whom surveyed, the date of recording, the docket number and the page of the county record plat books where the same can be found.

Heavy linen-back egg-shell paper is used in this work, this being durable under the necessary wear. One advantage of this method is that the atlas can be taken into a council or other meeting, and not only the history of every street detail be learned at once, but the municipal records referring thereto can be found readily, the atlas being self-explanatory in every way.

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Readers are invited to contribute to the MUNICIPAL JOURNAL AND ENGINEER, either in the form of special articles or of letters discussing matters of current interest.

It is also desired that the facilities furnished by the reference library in this office should be widely known and freely used by those interested in municipal affairs. Visitors will be welcomed and provided with conveniences for search, and inquiries by mail will be promptly dealt with.

JANUARY 27, 1909

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#### The Unbalanced Bid

WE were under the impression that the evils of the unbalanced bid were so generally known and appreciated, even by the public at large, that the acceptance of such a bid in its most flagrant form was practically unknown at the present day. We are therefore surprised to learn that a contract was let by the city of Chicago last June for repair work on asphalt streets, to a contractor whose bid contained the most glaring example possible of unbalanced bidding. Specifications called for two kinds of work, one the resurfacing of asphalt on the old foundation, the other the practical

rebuilding of the pavement; the estimated amount of the former being 27,000 square yards and of the latter 13,000. The work was let to a contractor who bid \$1.75 per square yard for resurfacing and 1 cent per square yard for reconstruction; the use of these figures and the estimated quantities making this the lowest bid. At the end of the year it was found that 11,100 square yards of reconstruction work had been done at a cost of \$111; but that 180,000 square yards of resurfacing had been done at a cost of \$315,000. This sum was \$96,500 more than the work would have cost under that bid which gave the lowest price for resurfacing work. We are loath to accuse collusion in this case, but we cannot believe that any contractor in his senses would have submitted such a bid unless he had felt very positive that the amount of resurfacing would have greatly exceeded that of reconstruction. If this knowledge was his merely because of his superior judgment, the Department officials, with their much greater facilities for knowing what work was likely to be done, either knew it also or were guilty of stupidity, of gross carelessness, or of worse. If the excuse can be given that they were compelled to award the contract to the lowest responsible bidder, then the regulations should long ago have been changed to include the clause now found in the majority of cities—that unbalanced bids will not be received.

#### River Pollution in Pennsylvania

WITHIN the next few months or years some interesting questions concerning the authority and power of State Boards of Health to compel the purification of sewage by cities of the State are likely to be submitted to the courts for decision. The State Board of Health of Pennsylvania has ordered a number of cities to install purification plants, and some of these have already done so; but others have paid no attention to the order. Among these is the city of Easton, the officials of which city had preliminary plans prepared and an estimate made, and submitted to the vote of the people the question of issuing bonds for the construction of a plant; which proposition was voted down. We believe the officials are prevented by law from issuing bonds for this purpose without the vote of the people, and no other way of building the plant seems practicable. The question now is, what can the State Board do to compel the carrying out of its orders?

Another problem of a different nature arose recently in the city of Reading. That city completed a year or more ago a most interesting plant consisting of septic tanks and sprinkling filters, which plant was to be operated by the contractor who constructed it for a payment of \$46,000 a year. The city having failed to pay the contractor for two successive months (there being no money in the city treasury, practically all creditors of the city were suffering in the same way), the contractor stopped operating the plant and permitted the crude sewage to run into the river. It was stated that the State Board of Health would sue both

the city and the contractor. Before the State had taken any action, however, the contractor resumed the operation of the plant and brought suit against the city.

The city of Philadelphia has been ordered to treat its sewage before discharging it into the Delaware and is now studying the problem. Early in this year the city of Harrisburg was ordered to prepare plans by May 1 of next year for intercepting sewers and a sewage disposal plant. It seems to be within the possibilities that in each of these latter cases certain citizens will contest in the courts the right of the State Board to compel the expenditure of the large sums required for this work.

#### SPRINKLING FILTERS AT HAMILTON

IN 1907 a sewage purification plant was built for a recently annexed portion of Hamilton, Ont., which is the largest of its kind in Canada, having a capacity of 5 million gallons of sewage. The dry weather flow at the present time is estimated at  $2\frac{1}{4}$  million gallons per day. The plant consists of a detritus well 25 feet in diameter, in which overflows to the bay are provided in case of extraordinary rainfall. In this well a revolving screen is situated. The heavier matters settle to the bottom of the well and the screen removes the lighter matters, so that all sand, gravel, paper, orange peels, rags and large substances of that class are arrested here. It is intended to have a small incinerator to burn the material taken from the screen.

Close to this well is a building containing two centrifugal pumps driven by electric motors and capable of handling 6 million gallons in 24 hours. The sewage is taken from the detritus well and forced through a 20-inch cast-iron pipe to two septic tanks, each 76 feet wide, 219 feet long and 11 feet deep. From these the effluent passes through two small roughing filters which prevent suspended matter from reaching the sprinkling filters. From here the sewage is carried by means of iron pipe to 570 sprinkler nozzles, which distribute it over a filter bed 2.3 acres in area. The filtering material in this bed is about 4 feet 6 inches deep and is composed of furnace slag, there being 140,000 cubic yards of this material. The septic tanks are constructed of reinforced concrete with buttresses placed 11 feet apart around the sides.

A large part of the sewage of the city is now treated by chemical precipitation at what is known as the Ferguson avenue works; but land has been purchased for the treatment of most of the remaining sewage of the city by septic tanks and filters, after the completion of which the Ferguson avenue plant may be operated merely as a pumping station.

#### GAS RATE LITIGATION IN SAN FRANCISCO

LITIGATION concerning gas rates very similar to that which has just been concluded—temporarily at least—in the case of New York City, is now under way between the city of San Francisco and the San Francisco Gas and Electric Company. The city passed an ordinance fixing the rate for gas at 85 cents per thousand

feet. The company obtained an injunction against the enforcement of this rate; which was later modified at the request of the city (as stated in our Legal News column last week) to provide that the difference between the \$1 collected and the 85 cents prescribed be held by the court pending the decision as to the legality of the latter rate. The present status is therefore very similar to that in New York city a year or two ago.

#### CONCRETE PAVING IN SALT LAKE CITY

A CONCRETE pavement was constructed last year in Salt Lake City, Utah, which was something in the nature of an experiment. It was laid upon one block of roadway 330 feet long and 30 feet wide between curbs, which is located at the foot of a long slope of from 6 to 10 per cent. The traffic over this street is principally local for the residents of the particular block on which the pavement was laid, and was primarily intended to stop wash by the water from the hill above. The paving was done by the abutting property owners under a private contract. The grade is so great that the street is not passable for heavy traffic; it consisting of two tangents, one of 16.55 per cent. and the other of 12.973 per cent., connected by a convex vertical curve. The pavement rises from the gutters toward the crown in two planes having a slope of 6 inches in 12 1-2 feet; the gutters being each 2 1-2 feet wide. The foundation for the pavement was of concrete 4 1-2 inches thick composed of one cement, three sand and five gravel. The wearing surface was 1 1-2 inches thick composed of one cement, one sand and one pea gravel. The paving was laid in alternate blocks 8 feet wide and extending from the edge of the gutter to the center of the street, the blocks being laid at an angle of 60 degrees to the axis of the street. The face of the wearing surface was scored to give a footing for horses.

#### FINANCING METER COSTS IN COLUMBIA

THE City of Columbia, S. C., in the operation of its water works last year, found its income to be about \$7,500 less than the expenses, but considered that the water used by State institutions and by the city for streets and other departments for which it received no payment would have just about this value. During the year \$3,500 worth of meters were installed for State institutions alone. It is proposed during the coming year to meet the heavy burden imposed by the installation of meters by requiring those applying for meters to pay for the same, the city to repay the consumer by deducting from the quarterly charges the sums paid; the consumer not beginning to pay rental until the purchase price has been paid by the quarterly charges. The prices charged are \$20 for a  $\frac{5}{8}$ -inch meter, \$22.50 for a  $\frac{3}{4}$ -inch, \$26 for a 1-inch and so on up to \$1,060 for a 12-inch meter. This information is sent us by Mr. Wm. H. Beards, the biologist in charge of the filtration plant, who suggests that this plan of furnishing meters without too great a strain on the finances of the company and at the same time without compelling the consumer to own the meter, may be used to advantage by other cities.

## NEWS OF THE MUNICIPALITIES

**Divers Subjects of General Interest and Their Treatment by City Councils and Officials—Streets, Water Works, Lighting and Sanitary Matters—Police and Fire Items—Government and Finance**

### ROADS AND PAVEMENTS

#### Wants City Wood Block Plant

Atlanta, Ga.—Commissioner of Public Works Henry L. Collier has offered to Council some suggestions in regard to street paving. He compares wood block, asphalt, bituminous and granite. He says that all first-class pavements laid on six inches of concrete cost about the same for the same class of work. With a wood-block plant, and the city forces doing the work, he says a wood-block pavement can be laid for \$2.50 per square yard, which is as cheap as any first-class pavement can be laid for in Atlanta.

#### Year's Record of Road Work in Maine

Augusta, Me.—State Commissioner of Highways, Paul D. Sargent, in his annual report gives the following statement of work done under his direction: Four hundred and sixty-six applications for State aid have been received, divided as follows: Cities, 19; towns, 398; organized plantations, 36; county commissioners for unorganized townships, 13. Of the above number, 12 towns have applied and have been granted permission to allow their joint fund to lay over until 1909. In 446 places the joint funds have been expended in completing as many pieces of highway improvement, divided in material and length as follows: Block paving, 1,461 feet; macadam, 50,004 feet; tar macadam, 846 feet; gravel, 287,006 feet; earth and drainage systems, 87,207 feet; earth and gravel, 10,863 feet; making a total length of 437,387 feet, built at a cost of \$266,930.32. Of this amount the State has furnished \$108,987.28. Towns to the number of 299 expended in excess of their joint fund \$47,418.16 in order to satisfactorily finish the work they had undertaken. The State appropriation of 1-3 of a mill on valuation of the State amounted to \$131,577.06. The expenditures for the 466 places applying for aid amounted to \$117,984.65.

#### Fears Paving Blocks May Float Away

Indianapolis, Ind.—City Street Commissioner Joseph L. Hogue has been anxiously watching the weather reports, fearing that rain might come before the snow is cleaned out of the gutters on wooden block pavements. In case of rain or snow, he says, the water soaks under the blocks causing them to bulge. If two or three blocks get started a large section of pavement is likely to go.

#### Work of City Asphalt Plant

Indianapolis, Ind.—Samuel Murray, superintendent of the Municipal Asphalt Plant, has filed a report with the Board of Public Works for the work done by the plant since it was placed in operation June 16. During that time the plant has patched asphalt streets as follows: City repairing, 75,428 square yards; private repairing, for plumbers and public service corporations, 7,540 square yards, and resurfacing of West Michigan street, from Blake street to White River, 9,504 square yards, making a total of 92,472 square yards. The city received \$12,330.72 from its private contracts, and the West Michigan-street work cost \$10,763.83, which the city hopes to recover from the Barber Asphalt Company, which paved the street originally. The work covered fifty-two streets, some of the patching work being of an extensive nature.

#### Encroachers Must Move Back

Lexington, Ky.—The Board of Public Works, of which W. M. Bateman is chairman, has decided to survey the streets in the northwest part of the town and make all property owners who have encroached on the sidewalk move back.

### New System of Highway Maintenance

Long Island City, N. Y.—Patrick E. Leahy, Commissioner of Highways, Borough of Queens, has organized a new system of inspection and repair of the highways. The borough has been divided into a number of districts, as follows: Long Island City, 8; Newton, 16; Flushing, 12; Jamaica, 12; Rockaway, 5. Each of these districts is to be in charge of an assistant foreman who will be held strictly responsible for the condition of his district. The names of each assistant foreman and his men will be furnished to the property owners and residents of the district, and the latter will be encouraged to co-operate with the new Commissioner. Reports will be received from the foremen every night as to the work that has been done during the day and the hours each man began work and when he stopped. The department has \$650,000 to spend on maintenance of the 800 miles of highways which have cost from \$12,000,000 to \$15,000,000, and are in bad shape.

#### Superiority of European Paving Methods Conceded

New York, N. Y.—Nelson P. Lewis, Chief Engineer of the Board of Estimate, has submitted a report embodying his observations made while attending the International Road Congress in Paris and visiting the large cities of Great Britain and the Continent. He says that the pavements and roads of Europe are better than ours and cost less. The materials and methods of using them are the subject of intelligent and painstaking investigation, and a careful record is made of the results obtained, not only in the laboratory, but on the street. Experience gained in one division of public works is promptly availed of in others, and new and successful methods employed in one city are promptly adopted by other municipalities. Nearly all of the European cities send some member of their technical staff each year to investigate what is being done in other countries and cities, in order that they may have the benefit of the latest knowledge and the most improved methods. In this respect we are far behind them, and for this fact the cumbersome organization, or rather a lack of organization, in our highway works is largely responsible.

#### Extent of Seattle Street Improvements

Seattle, Wash.—The great amount of local improvement work in progress in Greater Seattle is shown by the fact that during 1908 there were 201 assessment rolls filed with City Treasurer W. F. Prosser for collection, representing total collections of \$3,788,453.05. Ten condemnation rolls were filed, representing \$604,473.25, making the total collection authorized for various public local improvements for the year \$4,392,926.30. There were thirty-one paving assessment rolls filed, representing \$437,224.24; forty-five grading and regrading rolls, \$865,518.82; twenty-one grading and sidewalk rolls, \$423,755.36; twenty-six sidewalk rolls, \$326,730.49; ten planking rolls, \$72,794.30; thirty-six sewer rolls, \$232,454.99; one trunk sewer roll, \$48,896.42; twenty-seven water main rolls, \$254,192.72; two fire hydrant rolls, \$17,603.21; filling roll, \$65,067.50; cluster light roll, \$44,215.

#### Will Lay Large Amount of Improved Brick Paving

Topeka, Kan.—The specifications for brick pavements to be laid during the coming year will be altered so as to require the use of asphalt filler in the joints. Hitherto sand filler has been used and as a result many of the brick pavements have cut out at the joints and resemble cobble stone streets. Brick blocks having twice the area of the bricks will be used. Probably more paving will be done this year than ever before, petitions for 68 blocks of pavement having already been circulated.

## SEWERAGE AND SANITATION

### Small Bidders Want Chance

Baltimore, Md.—Local contractors are interested in the petition of the Builders' Exchange to the Sewerage Commission that access be given to the names of all large contractors to whom specifications are sent when bids on large contracts are called for. There are in Baltimore a number of contracting firms which of themselves are not large enough to handle some of the contracts let by the Commission, but are in a position to compete with one another and with outside firms for sub-contracts. It has been the general policy of the Commission to refuse to give out the names of prospective bidders, on the ground that such advance information might make possible a combination, to the detriment of the city. Recently a contract involving a large sum of money was let for supplying stone to the sewage disposal works at Back River. The bidders for the main contract were mostly out-of-town concerns. There are, however, in Baltimore several small quarries, no one of which could handle the entire contract. Had these local quarries known in advance the names of the prospective bidders on the main contract, says the Builders' Exchange, they could have offered to sub-contract for the stone, and thus save the great cost of freightage. The Builders' Exchange maintains that full information as to the names of prospective bidders on large contracts works to the advantage of the city in every way.

### Sewage Disposal System Urged for New York

New York, N. Y.—Plans for a sewage disposal system, drawn by Tribus & Massa, have been presented to Mayor McClellan by the Merchants' Association. The plan shows screening apparatus and sedimentation tanks placed underground at convenient places, under plazas and the open spaces near the wharves. Screenings are to be incinerated or shipped to sea with the sludge, which will be pumped directly from the tanks into steamers. The sum of \$32,000,000 is mentioned as the approximate cost of the work.

### Sewage in Their Water.

Pittsburg, Pa.—More than one hundred cases of illness have been reported from Bellevue, Avalon and other suburbs below Pittsburg said to be caused by drinking water taken from the Ohio river below the mouths of Pittsburg sewers. President Charles F. Trimble of the Ohio Valley Water Company, which furnishes water to these boroughs, is quoted as saying that because of a broken main the company cannot supply sufficient water from its wells and has been forced to use unfiltered river water.

### Hoisting Engine at Sewer Explodes

Louisville, Ky.—The big hoisting engine at the last section of the big southern outfall sewer exploded on a recent evening and all the framework connected with the building of the sewer caught on fire. There had been very high pressure all day, and, as is the custom, the steam was kept up all night. An alarm was turned in and was answered by an engine, which remained at the scene of the fire for about an hour and a half. The loss was estimated at about \$5,000.

### State Officers Threaten To Sue City and Contractor

Reading, Pa.—Contractor Weand, who operates the city sewage purification plant for a stated sum, \$46,000 per annum, having failed to receive his payments for two months, shut down the purification plant and allowed the 3,000,000 gallons of sewage a day to run into the Schuylkill River. State Commissioner of Health Dixon was at once advised of the conditions. He promptly telegraphed to the towns lower down the river advising the utmost caution in the use of the water. After holding a conference with Attorney-General Todd the Commissioner of Health announced that legal action would be taken against both the city and the contractor. After being shut down 36 hours the plant was started up and the contractor is now suing the city.

### Pittsburg Ordered to Build Sewage Disposal Plant

Pittsburg, Pa.—Mayor Guthrie has received the formal notice from the State Board of Health that Pittsburg must take steps at once toward the construction of a sewage disposal plant. Accordingly, Director Shepherd has included in his estimates filed with Comptroller Morrow an item of \$39,498 to pay for preliminary surveys. Until this work has been completed and approved by the State Board nothing in the matter of carrying out the work can be done. The cost of a plant is variously estimated at from \$10,000,000 to \$30,000,000. The present bonding power of the city is about \$23,000,000.

### Harrisburg Receives State's Orders Regarding Sewerage

Harrisburg, Pa.—A decree for the reconstruction and improvement of the sewer system of Harrisburg, to an extent that will cost the city a million and a half dollars at the least has been sent to the Mayor and Councils by Dr. Samuel G. Dixon, State Health Commissioner. The city must carry out the orders of the Commissioner to the letter. A time limit is set upon each change or improvement demanded, and it is expressly declared that the failure of the city to carry out the orders by the time set will be understood as an intentional violation of the decree. A marginal sewer along the river front, an intercepting sewer through the Spring Creek Valley to receive drainage now entering that stream, a discontinuance of the discharge of sewers into Paxton Creek, the connection of certain additional sewers with the Paxton Creek intercepting sewer, the selection of a site, and the arrangement of plans for the future use of a disposal plant are among the main features of the system as it is to be reconstructed. The minor changes have time limits set in the near future. For the big improvements ample time has been allowed for the preparation of complete and detail plans for the carrying out of the decree, which in turn must be passed upon by the State Health Department. An appropriation must be made, however, on or before May 1 of the current year for the preparation of plans for the marginal sewer and other large works.

### Order of State Board of Health Ignored

Laconia, N. H.—January 1 was the day when the order of the State Board of Health, prohibiting the depositing of sewage in Lake Winnipisogee went into effect, but as none of the towns where the sewage runs into the lake have provided any other way to care for their sewage, the action of the Board of Health in regard to the matter will be awaited with great interest by the residents around the lake. The special committee from the Laconia City Council, appointed to consider the matter, outlined a plan to purchase the Laconia Water Company and to extend the mains and take the water supply from Lake Winnipisogee instead of Lake Paugus, then to extend The Weirs sewerage down below the channel into Lake Paugus. This plan Mayor Knight stated to the State Board in a letter, but the reply he received from the Board has not been made public.

### Will Enforce Spitting Ordinance

Nashville, Tenn.—After February 1 there must be no spitting on the sidewalks of any street. Mayor Brown is preparing for a rigid enforcement of the anti-spit ordinance, which passed the City Council recently. The ordinance came in the form of an amendment to the Digest. The Digest sets forth the old law in regard to spitting, declaring it a misdemeanor for any person to expectorate or spit tobacco juice, or sputum, on any parts of any street railway car, or other public conveyances, or in or upon any part of any public building in the city of Nashville, and the amendment added after the word "Nashville" the clause, "or upon any sidewalk in the city of Nashville." The fine for an offense against the provisions of the law is not less than \$2 nor more than \$5, and a letter from the Mayor to Chief Curran directs that he instruct the police to rigidly enforce the measure.

## WATER SUPPLY

### Mutual Water Company Serves Patrons

Butler, Pa.—The East Oakland Mutual Water Company, organized by residents of the hill district of the Fourth ward, has turned water into its lines in that section of the town and is now furnishing an excellent quality of pure well water to those connected with the organization. The new company was organized a short time ago, after it was announced by the Butler Water Company that patrons using meters would be required to make an advance payment of \$3. Residents of the section took quickly to the proposition to organize an independent company and it was not long until more than one hundred of the property owners of the district had subscribed for stock in the company; had a managing board elected and are now furnishing water to many of those connected with the company.

### Lake Water Condemned by State Health Board

Hammond, Ind.—Owing to the filth and refuse turned into Lake Michigan by the American Maize Products Company at Roby, the drinking water used by the cities of Hammond, Whiting and Robertsdale has been condemned by the State authorities. The water is so bad that it can not be used for bathing purposes and the attention of the Federal authorities has been called to the dumping of glucose refuse in the lake by the Maize Products Company. So poisonous is the contamination of the water that fish are dying by the thousands in the lake near the Hammond pumping station.

### Engineer Fears Water Shortage

Oakland, Cal.—If City Engineer Turner's opinion is well based, there will be a shortage of the municipal water supply within the next three years. He considers the condition a serious one and admits that it is by no means certain where the supply will come from at the end of the time specified. It is figured by City Engineer Turner that the present available supply will not be adequate to the demands of the consumers three years hence, because of the recent rapid and now steady growth of this city and surrounding districts. Engineer Turner said that there is but one of two things to be done which will relieve the situation. That is to make an arrangement with San Francisco for a part of the supply from the Hetch-Hetchy or else call upon the Spring Valley Company.

### Pittsburg South Side Gets Filtered Water

Pittsburg, Pa.—Citizens of the South Side are at last enjoying the benefits of filtered water delivered to them through the pipes formerly belonging to the Monongahela Water Company. About a year ago the plant was appraised at \$1,975,000, but as the authorities thought the amount too much the matter went to the courts. The appraisement has been confirmed. In order to close the deal for the transfer of the plant Council authorized the Mayor and Comptroller to issue an indemnity bond to the company, pending the issue of bonds and other formalities.

### Oregon Will Regulate State Water Supply

Salem, Ore.—After two days' deliberation, during which the recommendations and suggestions of several authorities upon the subject were taken into serious consideration, the Oregon Water Commission completed the preliminary draft of a bill for a proposed water code governing the control, regulation and distribution of the state's natural water supply for irrigation, power and other purposes. The bill, as drafted in the rough at present, contemplates less machinery and complication than are necessary under present conditions. The cost of determining water rights under its provisions will be no more than is required in many cases to secure abstracts of land titles. The present system of Oregon laws for the adjudication of water rights involves such a mesh of complications of priority and riparian rights that an action at law is almost invariably necessary to determine the rights of every individual claimant upon a stream whenever a dispute arises.

### Costs \$10 to Leave the Water Running

Tacoma, Wash.—A corps of inspectors representing the water department was sent out through the city by Superintendent H. A. Whitney to get information against consumers who allow their faucets to run, wasting the water. Wherever the water is found running the consumers will be required to pay a fine or their water will be turned off.

### STREET LIGHTING AND ELECTRIC POWER

#### Columbus to Extend Arch Street Lighting

Columbus, O.—The electric arch street lighting system is to be greatly extended. The North High street addition which was recently inaugurated and put into service by the North Side Board of Trade, is to be followed by arches on West Broad street. It is now proposed to erect arches on East Broad street to Memorial Hall, which will make High and Broad streets the hub of the great system of electric arches. Here will be shown a double decorative design consisting of arches extending diagonally from the sidewalk corners of the intersection. At each corner also will be a handsome electrolier. It is proposed to give Columbus the soubriquet of the "Arch City."

#### Bill for Sixty-Cent Gas

Evansville, Ind.—Sixty-cent gas in the city of Evansville is asked in a bill presented to the Senate by Senator Durre, of Vanderburg County. At present the people of Evansville pay the Evansville Gas-and Electric Light Company \$1.10 a thousand feet for fuel and light gas. A 10 per cent. rebate on this is granted.

#### Consumers Indignant at Increase in Rates

Middleboro, Mass.—When the consumers of gas and electricity, supplied by the Municipal plants for December, received their bills they found a new attachment printed at the bottom, giving the minimum charges. The commissioners have decided to make a minimum charge of \$12 per year on gas and the same amount on electricity. A charge of \$2 per year is also made for the use of the meters. Many of the consumers have refused to pay this extra charge, and they defy the commissioners to shut off their lights. The matter will be taken to the state lighting commission as soon as a petition is framed.

#### Municipal Ownership Pays

New Wilmington, Pa.—Municipal ownership of an electric lighting plant is a good thing for the people of this place which is a college town near New Castle. The municipal company has cut the price of lighting from 10 to 8 cents per kilowatt hour. The department paid all expenses and made a surplus in 1908 under a 10-cent rate.

#### Council Considers Proposal to Buy Municipal Plant

Pasadena, Cal.—The Edison Electric Company has submitted a written communication to the City Council offering to purchase the municipal lighting plant and to give Pasadena the same rates that prevail in Los Angeles. The statement is made that the streets are not properly lighted, due probably to the fact that construction funds have been exhausted except such as are used to supply a limited number of citizens with light at a low rate. The city cannot, the letter goes on to say, hope to secure all the business of the Edison Company which supplies most of its current from water power. The city cannot reduce its rates without loss when allowing for plant depreciation.

#### Municipal Light for National Capital

Washington, D. C.—Representative Jenkins of Wisconsin, has introduced a bill in Congress for the purchase by the government of gas and electric light and power companies in Washington. Mr. Jenkins says that while not in favor of the principle of general government ownership, he regards Washington as an ideal place for such a proposition, in this instance, because the government—the Federal and the District—is the largest consumer.

## FIRE AND POLICE

### Automobiles in Place of Patrolmen

Cleveland, O.—Police Chief Fred Kohler, in his annual report to the Board of Public Safety, said: "The day of patrolling the streets is past. You might as well send the fire engines out in the streets looking for fires. I urge that at least fifteen automobiles be purchased for use of the Police Department for use in patrolling. Afterward Chief Kohler explained that he would do away with the walking of beats by policemen, substituting the use of automobiles, in which a squad of men could be carried over a great territory several times each night."

### Special Police to Renew the Permits

Columbus, O.—Secretary William Diehl, of the Board of Public Safety, has sent out notices to more than 200 special policemen to come into his office and renew their permits. All special police are authorized to serve during the year that they are appointed, and their licenses or badges of authority must be renewed at the beginning of every year. This is done not only to keep a correct record, but enables the different firms about the city who employ private watchmen to keep track of the men employed by other firms and the city in this work.

### Motorcycles to Protect Citizens From Burglars

Dallas, Tex.—Chief Brandenburg proposes to use policemen mounted on motorcycles as a means of protection against burglaries and hold-ups. Motorcycle policemen will be kept at the central station. Citizens who suspect the presence of a burglar in the house are invited to telephone police headquarters. Two or more motorcycle policemen will respond so quickly and quietly that the chances of getting their man will be much better than if officers were sent on foot or horseback.

### Method of Easy Access For Firemen Must Be Left

Dallas, Tex.—An ordinance has been passed requiring the maintenance of unobstructed passages for firemen in buildings where merchandise is stored. Not less than two openings must be maintained in both ends of the building in each story for every twenty-five feet of frontage. The size and location of the openings shall be such as may be directed by the Chief of the Fire Department.

### Fire Department Shows Little Growth in Fifteen Years

Duluth, Minn.—According to the annual report of Chief Black, the Fire Department is not keeping pace with the growth of the city either in men or apparatus. The fire loss of the year just closed, \$812,299 bears out his statement. Only once in the last fifteen years have the fire losses been excelled; that was in 1906 when the total was \$1,340,070. The average loss for the last fifteen years has been \$253,000. In 1904 there were 104 men in the Department and the cost of maintenance was \$126,023. In 1908 only 96 men were employed and the cost of maintenance was \$108,703. In 1894 the Department had three engines, three hook and ladder trucks, three hose and seven chemical companies; in 1908, four engines, four hook and ladders, two hose and one chemical company. During that period the population of the city has increased from 33,000 to 85,000. Chief Black strongly urges the purchase of a fire-boat.

### Saves Money on Purchase of Chemicals

Haverhill, Mass.—A saving made by the Municipal Council in the purchase of 800 pounds of common soda for the chemical fire extinguishers, was profitable in that the chemical was bought for 2 cents a pound simply by telephoning around until the lowest price was secured. Last year Chief Engineer Gordon paid 3 cents a pound for the same material and considered that he was securing it at a minimum cost. Bicarbonate of soda is quoted at wholesale in New York at \$1.45 to \$1.65 per cwt.

## Mayors Instead of Governor to Name Police Boards

Indianapolis, Ind.—Under the provisions of the bill to amend the metropolitan police law of Indiana, which was introduced in the Legislature by Senator McCullough, of Anderson, the power of the Governor of Indiana to name the members of the Boards of Police Commissioners is entirely removed and placed in the hands of the Mayor of the city affected. Senator McCullough's bill provides that the metropolitan police system shall be used in all cities of not less than ten thousand population and of not more than thirty-five thousand population, based on the census of 1900.

### Breaks of Mains No Menace to City

Minneapolis, Minn.—That there is less danger of inadequate water power in time of a break in a watermain in Minneapolis than in any other city in the United States, is the opinion of Fire Chief J. R. Canterbury. The Minneapolis water system is equipped with 11 shutoff gates to the mile, while other cities have only three or four. In case a fire should occur at a time when there is a break in a watermain it would be easy to obtain plenty of water by using one of these shutoff gates.

### Fire Steamer is Not Needed

Orange, N. J.—The new high water pressure service in Orange has given such satisfaction to the Fire Commission that the members have agreed unanimously to retire the steam fire engine from active service except when called upon by the Chief. Private tests made by President Beegle showed that even in the highest sections of the city the pressure is sufficient to send two streams over the top of any building. At Berkeley and Tremont avenues, the highest place in the city, where the pressure is naturally the lowest, the force varied from seventy-two to seventy-five pounds to the square inch.

### City Wants Premiums Paid to Firemen's Association

Rochester, N. Y.—Corporation Counsel Webb has served notice on representatives of foreign fire insurance corporations doing business in Rochester demanding that they pay to the City Treasurer the sum of \$2 on every \$100 received for premiums, which they have been paying to the Rochester Fire Department. When the volunteers furnished fire protection to Rochester they were organized as the Rochester Fire Department. When the paid Department was formed the old company continued to collect the 10 per cent. The corporation has grown wealthy and is said to have an income of \$16,000 a year, part of which it uses in pensions to such volunteers as are sick or indigent now. The corporation will contest the city's right to the annual payment.

## GOVERNMENT AND FINANCE

### Local Government Board for Massachusetts

Boston, Mass.—A bill has been presented to the Legislature by Myron E. Pierce to change the name of the Civil Service Commission to that of Local Government Board and to give it authority to pass on financial problems incident to municipal government. In some respects the proposed board is to be like the Local Government Board of England, but not as broad in its scope. The Board is to have power, by itself or by one or more of its employees, to examine and investigate any or all departments of any city and to make such recommendations thereon as it shall consider proper. No city may make a loan not payable from the taxes of the current year without first securing the approval of the board.

### Franklin a Third-Class City

Harrisburg, Pa.—Governor Stuart has signed the application of the city of Franklin to come under the general third-class city acts. This leaves only Lancaster and a few cities which are not classified.

**City's Money Has Earned \$92,903.94 in Three Years**

Columbus, O.—The interest earnings on funds of the city of Columbus deposited in different banking institutions for the three years ending December 31, 1908, amounted to \$92,903.94. Three years ago, when C. H. Smith took up the duties of Treasurer, the money had been placed in different banks, but no interest earnings had ever been credited to the city. Mr. Smith at once inaugurated the plan, and has been placing the funds where the largest earning would accrue.

The third annual report, just completed, shows that during his administration the following amounts have been earned annually:

1906.....	\$27,472.73
1907.....	33,050.43
1908.....	32,380.78

The amount of interest earned is more than enough to keep several departments of the city going. The earnings are paid on the daily balances and all the accounts are open. Very little money is kept in the city vaults, but is put out to "work" for the city, and only what is absolutely necessary to conduct the affairs of the office is kept on hand. The interest for the month of December was \$273.14.

**Honolulu Becomes City**

Honolulu, H. I.—For the first time in its history a municipal government was organized and a Mayor installed in office with the new year. Joseph J. Fern, who was elected Mayor, has been a member of the Board of Supervisors of Oahu County. The city and county of Honolulu is the successor of the county of Oahu, so that Mr. Fern is not wholly inexperienced in his new duties.

**No City Treasurers**

Indianapolis, Ind.—Senator Mattingly has introduced a bill which would abolish the office of city treasurer in all cities of Indiana which are county seats, if passed by the Legislature. Senator Mattingly would make it the duty of the county treasurer to collect all city taxes, for which services he would get a salary paid by the city.

**Perpetual Exclusive Public Utility Franchises Proposed**

Indianapolis, Ind.—A public utilities bill has been prepared for submission to the Legislature by the Indiana Manufacturers' and Shippers' Association. It is a lengthy document with many subdivisions, one of the most important of which is that providing for "perpetual exclusive franchises." According to this section, every franchise hereafter granted is to be exclusive and perpetual subject to the provisions of the act, and subject to the provision that the municipality in which the major portion of its property is situated may purchase the property actually used and useful for the convenience of the public, at any time by paying just compensation to be determined by the Commission. Another public utility bill has been prepared by Senator Mattingly without the perpetual franchise, with the alternative of municipal ownership provisions.

**Finance Committee Finds Lack of Uniformity**

Malden, Mass.—The Finance Committee appointed by Mayor Richards several months ago to investigate the several city departments has made a partial report to both branches of the city government. An abstract of the report is as follows:

We find that in the city departments there is a lack of uniformity between departments in systems, methods and classification.

That the methods and system at present in operation do not comply with the recommendations of the Bureau of Statistics of Labor, for a uniform system of municipal accounting as embodied in the introduction to its report of 1908.

We, therefore, recommend that an expert on municipal accounting be employed to inaugurate a system throughout all departments which will meet modern methods and comply with the uniform system recommended by the State Bureau.

**Wants Commission Plan**

Newburyport, Mass.—The city has petitioned the Legislature for permission to adopt the commission form of government. The bill provides for an executive and legislative department of the city government, the executive to consist of a Mayor and four Aldermen. The legislative department is to consist of 146 Councilmen, to be elected at-large for terms of three years each. There are to be 24 members from each of the six wards, of whom the Auditor and Treasurer act ex-officio. The Mayor and Alderman are each to be elected for terms of two years. The legislative body to be known as the Representative Council, is given power to elect a City Clerk, Treasurer, Collector, Auditor and Assessor, and to fix the compensation of the Mayor and Aldermen, after the year 1910, in which the salary of the Mayor is to be \$1,200 and that of the Aldermen \$800 each. The Representative Council is given the powers of towns, and the city is bound by its acts to the same extent that towns are bound by the action of their town meetings. The Board of Aldermen is given authority to elect a City Marshal and other police officers; a Superintendent of Highways and Sewers; a City Solicitor; a Board of Registrars of Voters; a Tree Warden, and such other officers as it may be authorized by the Representative Council to elect. Party and political designations on the ballot are prohibited, and candidates are required to file nomination papers for any elective office they may seek; a preliminary election is provided for the nomination of candidates for Mayor and for the Board of Aldermen, as in the Haverhill plan. Only one voting place is to be allowed for the entire city, at City Hall.

**Debt and Taxation Increase**

Cincinnati, O.—The city has reached the limit of its power to issue bonds under the Longworth act which fixes the maximum of bond issues at four per cent. of the tax duplicate. At the close of 1900 the net bonded debt of the city was \$24,863,194, at the close of 1907 it was \$40,437,413. In December, 1902, the tax rate was \$23.18, and in December, 1908, \$29.60. In seven years the debt has increased 70 per cent. and the tax rate 30 per cent.

**Mayor Signs Order for Salaried Council**

Lynn, Mass.—The ordinance giving members of the Common Council yearly salaries of \$100 each was signed by Mayor Thomas F. Porter before his term expired recently and the sum of \$2,500 was added to the fixed charges for conducting the city. The fight for salaries for the members of this branch has been waged for several years.

**Loose Leaf System of Assessment Accounting**

Oklahoma, Okla.—City Clerk George Hess has devised a system of keeping accounts of paving and other assessments which saves much work and has been extensively copied by the cities of the State. The plan of Mr. Hess made it necessary to create an entirely new and wholly distinct record. To begin with, he decided upon a loose leaf system of bookkeeping. On these leaves he drew little red lines running up and down each sheet, and on both sides. Divided into columns, he made one to answer for the description of the property, followed by the lot number and block; additions; original amounts; ordinance number; installment number; interest installment; total payments, and date when paid. Then the same thing over again ten times, once for each of the ten payments. This system requires both sides of the page, but it makes a mistake impossible. An error is absolutely inexcusable. City Clerk Hess has followed a like course in his bond record.

**Public Service Commission Recommended For Utah**

Ogden, Utah.—Governor Spry in his message to the Legislature recommends that a public service commission be created to have power to regulate prices of manufactured products, commerce, transportation rates, and to collect and publish information regarding public utilities.

### REFUSE COLLECTION AND DISPOSAL

#### Water In Garbage Increases Cost of Reduction

Bridgeport, Conn.—The Board of Health is making unusual efforts to enforce the ordinance requiring garbage receptacles to be kept covered and under a roof. The object is to keep rain and snow from increasing the weight of the garbage when it goes to the reduction plant, where it is weighed and reduced at a fixed price per ton. It has been estimated that every time there is a rain the city loses from \$25 to \$50 for the difference in the amount of water.

#### Special Water Connections for Sprinkling Carts

Houston, Tex.—Plans are being considered by the Water Department, whereby it will not be necessary for the street sprinklers to use the regular fire hydrants. It is asserted by the Commissioner, the continual use of the fire hydrants, by the water sprinklers, wears out the threads, and when, in case of fire, hose is attached to the hydrants, the worn threads are unable to resist the heavy water pressure, resulting in the blowing off of the hose. To obviate this, the department will run from the mains, special pipes and arrange hydrants along the main streets to be used only by the water sprinklers.

### RAPID TRANSIT

#### Why Progress of Improvements Is Slow

Boston, Mass.—In order to make clear the difficulties of prompt action in matters of rapid transit, a Boston engineer has compiled the following list of public bodies or corporations who must be consulted in order to carry out any new plan within the metropolitan district: The Commonwealth of Massachusetts; the Legislature of Massachusetts; Railroad Commission; Commission of Commerce and Industry; Metropolitan Park Commission; Metropolitan Improvement Commission; Special Grade Crossing Commissions; Harbor and Land Commissions; Boston Transit Commission; Metropolitan Water and Sewer Commissions; the thirty-nine cities and towns of the Metropolitan District; the Boards of Aldermen of the cities; the Selectmen of the towns; the Suffolk County Commissioners; the Middlesex County Commissioners; the Norfolk County Commissioners; the United States Government; the Congress of the United States; the Interstate Commerce Commission; the Operating Companies; the Subsidiary Companies; the Stockholders; the Public.

#### Favors Freight Subway

New York, N. Y.—In a special report to the Legislature the Public Service Commission recommends the passage of an act which will allow the Commission to grant a franchise for the building of a freight subway under the marginal streets of the North and East Rivers. Only by this means, it is stated, will it be possible to do away with the New York Central's tracks on the Eleventh avenue and other streets on the lower West Side. A franchise to a private corporation is favored because all the funds the city can raise, because of the near approach of its indebtedness to be the constitutional debt limit, are needed for passenger subways.

#### To Limit Car Passengers

Seattle, Wash.—Councilman W. H. Weaver has introduced a bill in City Council providing that no more passengers be allowed on a car than may obtain seats in addition to one person for each three square feet of aisle and platform space, not taking into account any platform from which passengers are barred. Each car must carry in a prominent place a card indicating the maximum number of passengers that may be carried, and for violations a fine of from \$5 to \$25 may be imposed for each passenger carried over the maximum capacity of the car. In urging the adoption of this resolution Weaver took occasion to say that conditions are growing worse as the city increases in population and that the new cars were selected because they afforded more room in the aisles and less in the seats.

### Public Service Commission Reports

New York, N. Y.—Such new legislation as the Public Service Commission thinks necessary for better supervision and regulation of the traction companies and the construction of new lines, is recommended in the Commission's annual report. Briefly stated, the Commission recommends a constitutional amendment exempting rapid transit bonds from the consideration of the debt limit of the city, an amendment providing for the termination of franchises at the time the franchise for the connecting main line expires; an amendment permitting construction by private capital, and payment of part earnings to the city; an amendment putting extensions under the same law, practically, as new lines; an amendment to the Elsberg law permitting the granting of franchises for a longer term than twenty years, and an amendment having to do with the payment by operating companies of annual interest and sinking fund charges. In addition, at the very end of the chapter dealing with these matters the Commission adds that it favors permitting the cost of rapid transit lines to be assessed in whole or in part on the lands benefited, but it is not yet prepared to recommend a definite method.

#### Side-door Subway Train

New York, N. Y.—The experimental Subway train with the side doors, which the Public Service Commission ordered the Interborough to equip and put into service many months ago, will be run for the first time on February 5 at the latest. The company has about completed one of the trains of eight cars after having experimented for months with a pneumatic door opening device. The particular kind of car that is to be used is the result of a report made by Bion J. Arnold to the commission, and if it is a success the company will be required to change all the cars now in use.

### MISCELLANEOUS

#### Mayor Attacks Railroads

Buffalo, N. Y.—Mayor S. N. Adam, in his annual message, made an attack on the railroads having terminals in the city, which he accused of throttling the growth of the city by monopolizing the water fronts and unfair treatment of the city in the matter of safeguarding crossings and providing passenger terminals adequate to the city's needs. He recommended that every privilege granted to any railroad for any purpose, where the same does not directly serve as a switch to some Buffalo industry or business to whose prosperous continuance such switch is necessary, be revoked; that the roads be obliged to maintain flagmen night and day at every crossing at grade; that a commission of five be appointed to investigate assessment of railroad property; that the Public Service Commission be asked to compel the construction of improved stations; that at perilous crossings every train be stopped; that switching be forbidden at all crossings at grade, and that the Legislature be asked to compel the roads to defray the entire cost of future grade crossings improvement, maintenance, consequential and other damages. Concluding these recommendations, the Mayor put this blunt question to the Council: "I ask you plainly—where do you stand, with the railroads or with Buffalo?"

#### Park Square, Boston, Now Lincoln Square

Boston, Mass.—The Aldermen, with but one dissenting vote, authorized the changing of the name of Park Square to Lincoln Square as a tribute to Lincoln's memory.

#### Anti-Noise Crusade in Trenton

Trenton, N. J.—At the instance of Councilman Edward C. Bullock, Trenton's Common Council is to pass on an ordinance prohibiting all kinds of unnecessary noises. The measure will provide against the prolonged blowing of whistles at election time or other occasions of jollification. Trenton residents have been much annoyed recently by electric whistles used by factories, and made a protest.

## LEGAL NEWS

### Summary and Notes of Recent Decisions—Rulings of Municipal Interest

#### REMOVAL OF REFUSE—EXCLUSIVE PRIVILEGES

**Sandberg vs. City of Chicago.**—If the Legislature authorizes the passage by a municipality of an ordinance requiring or prohibiting the doing of a specified thing, the judicial department cannot set it aside as unreasonable, but the courts will assume that the legislative intent is that power given shall be exercised in a reasonable manner, and the courts can only declare such ordinance void if it is in conflict with the Constitution, but, where the authority is not expressly given, it is the duty of the courts to determine whether the general authority is reasonably exercised. Under a charter provision conferring upon the City Council the power to do all acts and make all regulations necessary or expedient for the promotion of health or the suppression of disease, the Council is not authorized to pass an ordinance giving the exclusive right to a person selected by a Commissioner of Health to ship manure from the city from stations designated by him, as such ordinance is an unreasonable exercise of a power given by the charter.—Supreme Court of Illinois.

#### CHANGE OF STREET GRADE

**Mayer vs. City of New York.**—Where prior to the adoption of Greater New York charter, providing that, in all cases where a change of grade of any street has been made prior to the taking effect of this act, the right of abutting owners to damages shall be governed by the laws in force when the change was made, and that a grade shall be deemed "established" within the section, where it was originally adopted by the action of the public authorities, or where a street has been used by the public, as of right, for twenty years, and been improved by the public authority at the expense of the public or of the abutting owners, a street, the grade of which had been established by user, was improved, and the established grade changed, the right of an abutting owner, who had erected buildings according to the old grade, to damages for the change was governed by the county and village law, and not by the charter provision.—Courts of Appeals of New York.

#### TELEPHONE RATES

**Home Telephone and Telegraph Company vs. City of Los Angeles.**—Charter authority to regulate telephone service and to fix and determine the charges therefor does not empower a municipality to enter into a contract fixing unalterably, during the terms of the franchise, the charges for such service, and disabling itself from exercising the power of regulation. Municipal regulation of the rates which a telephone company may charge, on a lower scale than those prescribed for a competitor, does not necessarily deny the equal protection of the laws, since such competitor may bring its patrons into communication with a larger number of persons, dwelling in a more widely-extended territory, and may render much more valuable service.—Supreme Court of California.

#### RACING ON STREETS—LIABILITY

**Marth vs. City of Kingfisher et al.**—The racing of five or six wild and unbroken horses upon the street of a city when a large crowd is gathered is a dangerous and illegal use of such street, for which a commercial club and its officers and agents, at whose instance and under whose supervision such race is conducted are liable to a traveler upon such street, who, without fault on his part, is struck and injured by one of the horses in the race.—Supreme Court of Oklahoma.

#### CHANGE OF STREET GRADE

**Triest vs. City of New York.**—An abutting owner who, under Greater New York charter, as amended by Laws 1901, is not entitled to damages for an original establishment of the grade of a street, cannot complain of a failure to give notice of proceedings for the assessment of damages on account of establishment of the grade and the improvement of the street.—Court of Appeals of New York.

#### DAMAGES STREET EXCAVATION

**Tagge vs. City of Roslyn.**—In an action against a city for injuries received by plaintiff by his falling into an excavation in the street, evidence held to present a question for the jury as to whether plaintiff was intoxicated at the time of the accident.—Supreme Court of Washington.

#### PUBLIC IMPROVEMENTS—CONFORMITY OF ORDINANCE TO RESOLUTION

**City of Chicago vs. Gage.**—An ordinance providing for a public improvement must be consistent with the resolution authorizing it, and cannot change the nature, character, locality or description of the improvement, but since it forms the basis of the contract for the improvement it is necessarily more particular than the resolution is required to be, and must specify, with particularity and exactness, the precise details of the work to be done and materials to be used. The court will not, for the purpose of setting aside an assessment for expenses of asphalt pavement, take judicial notice that a combination of asphaltic cement, sand and carbonate of lime, specified in the ordinance providing for the improvement, was not the asphalt mentioned in the resolution authorizing it, but the inconsistency, if any, must be shown by the party seeking to avoid the assessment, as the chemical and mechanical composition of asphalt is not a matter of common knowledge. A provision in an ordinance that the ingredient of concrete to be used in paving a street shall be "torpedo sand or limestone screenings or other material equal thereto for concrete purposes" does not render the ordinance uncertain, or give an improper discretion to the city authorities in the selection of the material to be used; for, while the work must be done under their supervision, the question whether the improvement has been constructed substantially in conformity with the ordinance is finally to be determined by the court in which the assessment is confirmed. An estimate for a public improvement contained an item "constructing one new catch-basin at \$50," and a statement that it included labor and materials, and also contained an item for "adjusting sewers, catch-basins and manholes, \$485." Held, that the estimate was a sufficient compliance with the ordinance providing for the improvement, which required that the catch-basin should be built of brick on a two-inch pine plank, connected with the sewer by a nine-inch tile pipe and a "Y" branch trapped with a half trap, and provided with a cast-iron cover; it not being necessary for the estimate to set out in minute detail all the separate items of material and labor which were to go into the improvement, but only the substantial component elements of the improvement.—Supreme Court of Illinois.

#### WESTRUMITE PATENT INVALID

**Westrumite Co. of America vs. Commissioners of Lincoln Park.**—The Van Westrum patent No. 752,487, for a method of sprinkling streets, consisting of treating the loose surface of roads or streets with a mixture or "solution" of oil and water, is void on its face, there being no patentable invention or novelty in using a mixture of oil and water for that purpose, and no method known or disclosed by the patent of combining the two in solution.—United States Circuit Court.

#### STREET MAINTENANCE A NECESSARY EXPENSE

**Town of Hendersonville vs. Jordan.**—The expense of maintaining the streets of a town in a proper manner is a "necessary expense," within the Constitution, forbidding a municipality to contract a debt, etc., except for a necessary expense, without a popular vote.—Supreme Court of North Carolina.

#### CITY MARSHAL—SUFFICIENCY OF SALARY

**De Merritt vs. Weldon et al.**—An ordinance of a city of the sixth class having a population of about 1,800 inhabitants, which fixes the salary of the Marshal at \$10 a month for the performance of his statutory duties, is not invalid on the ground that the salary fixed is so small that no competent person can be found to fill the office; the Municipal Corporation Act not requiring that the Marshal shall devote all his time to the duties of his office, and there being nothing warranting the inference that a proper discharge of the duties of the office will materially interfere with the conduct by him of other business.—Supreme Court of California.

#### POWER TO CONTRACT—COUNCIL—MAYOR

**Coleman et al. vs. Town of Hartford.**—Unless otherwise specifically provided by law, the power to make municipal contracts resides in the Council, and the Mayor thereof has no authority to bind the city by contract unless authorized by the Council or by the State. The charter of a town vested in its Council the power to select an attorney. An ordinance showed that the Council alone had such authority. An attorney rendered services to the Mayor and Marshal under a contract with the Mayor. The town, through its Council, disapproved of the claim for services, except a part thereof. Held, that the town was not liable for the fees repudiated by the Council.—Supreme Court of Alabama.

## NEWS OF THE SOCIETIES

**Mayors' Association of Connecticut.**—The association met in the office of the Mayor, Edward W. Hooker, at Hartford, Conn., January 14, and for two hours discussed the most vexing tax problem in the State, the collection of the poll and military taxes by the town governments. The result of the discussion was the adoption of a plan proposed by State Tax Commissioner William H. Corbin, and the instruction of the Legislative Committee of the Association to frame a bill, with the guidance of Commissioner Corbin, which shall permit, but not compel, each town to appoint a special officer to make a house to house canvass, make a complete enrollment of persons liable to military and poll taxes, and to collect those taxes each year. It is understood that this officer, although virtually an assistant to the Town or City Tax Collector, who is elected in most of the towns and cities of the State, shall be appointed to hold office during good behavior, and that his duties shall be considered separate from those of the elected tax collector. Following the discussion, the mayors repaired to the Hartford Club for luncheon, where Mayor Hooker did the honors as host. There were present Mayor Hooker, of Hartford; Mayor George Foster, of Rockville; Mayor R. L. Armstrong, of New London; ex-Mayor P. A. Sullivan, of Hartford; ex-Mayor L. Beckwith, of New London; ex-Mayor M. Wilson Dart, of New London; ex-Mayor Alexander Harbison, of Hartford; ex-Mayor Wallace Dunn, of Norwalk; Mayor Henry Lee, of Bridgeport; Mayor Daniel P. Dunn, of Willimantic; Mayor Alfred F. Howe, of Derby; ex-Mayor W. A. Braun, of Danbury; Mayor George M. Landers, of New Britain; ex-Mayor George F. Holcomb, of New Haven; ex-Mayor M. C. Webster, of New Britain; ex-Mayor C. T. Driscoll, of New Haven, and Chairman F. S. Chamberlin, of the Board of Taxation in New Britain.

**South Bend Chamber of Commerce.**—Over three hundred business men in South Bend, Ind., have joined in the organization of the South Bend Chamber of Commerce with a view to pushing all endeavors for a bigger, better and busier South Bend. Merchants, manufacturers, professional men and other business men are included in the membership which will probably reach 500 before the end of the year. The directors are Fred A. Bryan, W. O. Davies, J. P. McGill, George A. Robertson, Myron Campbell, John A. Hibberd, D. L. Guilfoyle, F. A. Miller, L. P. Hardy, William Happ, Otto C. Bastian, Max Livingston, S. D. Rider and George B. Pulfer. These directors have elected the following officers for one year from Jan. 1, 1909: President, F. A. Miller, editor of the South Bend Tribune; first vice-president, L. P. Hardy; second vice-president, William Happ; treasurer, Myron Campbell. The directors are endeavoring to secure a first-class and experienced man for secretary at a good salary. The association expects to take a strictly non-political interest in city affairs, to secure industries, to beautify the city, to adopt measures for an increase of retail and wholesale trade and to do all it can in a general way to foster the interests of South Bend. Politics are absolutely barred from the organization. It is entirely non-partisan and only for the best interests of South Bend.

### American Society of Civil Engineers.

—The fifty-sixth annual meeting was held on January 20 at the house of the society in New York City, with an attendance of about 700, the president, Charles Macdonald, presiding. The report of the Board of Direction for the year ending December 31, 1908, showed a total membership of 4,824, of which 2,370 are members, 1,619 are associate members, 642 are juniors and the remainder honorary and corresponding members, associates and fellows. The net increase was 413 and the deaths 45. Accessions to the library, amounting in value to \$3,382, numbered 4,980, bringing the total of bound and unbound volumes, specifications, maps, photographs and drawings up to 63,613. The attendance in the reading room and library was 4,285, a considerable increase over previous years. New bibliographies to the number of 74, containing 2,253 separate references, have been compiled. The publications of the society during the year contained 3,653 pages, an increase over 1907 of 315 pages. In order to keep the volumes of transactions within reasonable size the board has decided to issue them quarterly hereafter. During the year twenty-five meetings have been held, with a total attendance of 5,050. The reports of the Secretary and the Treasurer showed that the receipts for the year were \$126,381.78 and disbursements \$93,299.18, leaving a balance on hand of \$33,082.60. A payment of \$10,000 was made on the mortgage debt, reducing the latter to \$155,000. The committee on prizes reported the following awards for the year ending with July, 1908: Collingwood Prize for Juniors, to Diedrich W. Krellwitz, for the paper on "Reinforced Concrete Towers"; Thomas Fitch Rowland Prize, to Edward E. Wall, for the paper on "Water Purification at St. Louis"; Norman Medal, to C. C. Schneider, for the paper entitled "Movable Bridges." The annual convention was announced to be held in the Mt. Washington Hotel, Bretton Woods, N. H., July 6-9, 1909. The following were elected members of the Nominating Committee: District 1, Frederick W. Gardiner; District 2, Richard A. Hale; District 3, Edward B. Codwise; District 4, Frank Sutton; District 5, Henry E. Riggs; District 6, Charles C. Wentworth; District 7, Charles E. Fowler. The Special Committee on Engineering Education reported the formation of a Joint Committee on Engineering Education with the following members: American Society of Civil Engineers, Desmond Fitzgerald, B. M. Harrod; American Institute of Mining Engineers, Dr. Henry M. Home, John Hays Hammond; American Chemical Society, Professor H. P. Talbot, Dr. Clifford Richardson; American Society of Mechanical Engineers, Professor A. C. Humphreys, F. W. Taylor; American Institute of Electrical Engineers, Dr. Samuel Sheldon, C. F. Scott; Society for Engineering Education, Professor D. C. Jackson, Professor C. L. Crandall, Dean J. M. White; General Education Board, E. B. Andrews; Carnegie Foundation, Dr. H. S. Pritchett. The election of officers, in which 1,083 votes were cast, resulted in electing the members proposed by the Nominating Committee. They are: President, Onward Bates, Chicago; Vice-Presidents, George H. Pegram, New York City, and Emil Swensson, Pittsburgh; Treasurer, Joseph M. Knap, New York City; Directors, Francis L. Stuart, New York City; Samuel C. Thompson, New York City;

William G. Wilkins, Pittsburg; Arthur N. Talbot, Urbana, Ill.; William M. Gardner, Memphis, Tenn.; Horace A. Sumner, Denver, Colo.

**Ohio Engineering Society.**—The thirtieth annual convention of the society is in session at Columbus, O., January 26-28. Headquarters are at the Assembly Room, Great Southern Hotel. The program, as announced by Paul Hansen, Harrison Building, Columbus, the Secretary-Treasurer, follows:

Tuesday, January 26, Morning Session, 9:30.—Preliminary business meeting for officers and committees. Afternoon Session, 1:30.—Devoted to papers of special interest to surveyors and highway engineers: "Road Problems in Ohio," illustrated, James C. Wonders, State Highway Commissioner; "An Economical Long Span Reinforced Concrete Highway Bridge," illustrated, Wilbur J. Watson, Consulting Engineer, Cleveland; "Reinforced Concrete Highway Bridges—Present Status and Possible Future Developments," illustrated, Paul R. Murray, Consulting Engineer, New Philadelphia; "Table of Short Radius Curves," W. H. W. Jenkins, Surveyor and Civil Engineer, Portsmouth. Evening Session, 7:30.—Devoted to papers of special interest to mining engineers: "Ceramic Engineering," illustrated, Prof. Edward Orton, Jr.; "Coal Mining," illustrated, Prof. N. W. Lord.

Wednesday, January 27, Morning Session, 9:30.—Devoted to papers of special interest to municipal engineers: "Grade Crossing Elimination in Columbus, Ohio," illustrated, R. H. Simpson, Assistant City Engineer; "The Operation of the Columbus Sewage Purification Works," illustrated, C. B. Hoover, Superintendent in Charge; "Fourth Street Paving, Portsmouth," W. H. W. Jenkins, Surveyor and Civil Engineer, Portsmouth. Afternoon Session, 1:30.—Excursion to Sewage Purification Works. Evening Session, 7:30.—Devoted to papers of special interest to municipal and sanitary engineers: "The State Board of Health and Engineering Problems," Dr. C. O. Probst, Executive Officer of the State Board of Health; "The Improved Water Supply and Sewage System of Columbus, with Special Reference to the Developments Leading Up to These Improvements," illustrated, Julian Griggs, Consulting Engineer, Columbus; "The Operation of Water Purification and Softening Plants with Special Reference to the Works at Columbus," illustrated, Wm. R. Cope, Superintendent in Charge.

Thursday, January 28, Morning Session, 9.—Excursion to Columbus Water Purification Plant. Afternoon Session, 1:30.—General business meeting. Evening Session, 6:30.—Annual Dinner at Great Southern Hotel. The following speakers of the evening are announced: Col. Chas. Perkins, Chief Engineer of the Ohio State Board of Public Works, on "Internal Waterways"; Marshal Ora Leighton, who comes as a special representative of the National Conservation Commission, to speak on "The Conservation of Natural Resources and Its Relation to the Engineer." Mr. Leighton's talk will be illustrated with lantern slides.

**Civic Improvement Association of Pittsburg, Pa.**—The first meeting of the association was held in Mayor Guthrie's office, with president H. D. W. English in the chair. Tentative plans looking to the betterment of sociological, sanitary, industrial and moral conditions of the city were discussed and in this connection a committee on plans and procedure was appointed as were several temporary committees. A commission of sixteen members of the Association were chosen, whose work is intended to be broader in scope and purpose than any commission yet created in an American city. The object is to give due weight and recognition to the industrial elements in the development of a city. Efforts will be made to keep the labor force of the district at the highest point of productive efficiency through the consideration of such subjects as public hygiene, housing, industrial casualties, and over-strain and the development of local improvements which will lead to the highest standards of home conditions.

**City Auditors of Ohio.**—The fifth annual session was held in Columbus, O., January 12-13. C. A. Tracy, of the State Bureau of Accounting, was asked what could be done by the Auditors in the dry cities of Ohio to get funds to tide them over until the next appropriation was made. He could only suggest borrowing from other funds when they were available or the issuing of deficiency bonds. Before the argument on the tax question was taken up, Mr. Tracy explained the new method of bookkeeping required by the State Bureau of Accounting in the Auditor's office, and said that while it may appear difficult at first, it would prove by far the best and easiest way after it was once understood. He said that he hoped the time would soon come when the books and methods of all municipalities would be in the same manner and style, that a uniform system be adopted and every city in the State be compelled to follow it out. This would simplify matters a great deal, and the Auditors of the State would receive the benefit of the experience of the State Department, who would seek the very best and simplest way to do the work.

**Municipal Engineers of the City of New York.**—At the regular meeting of the Society, January 27, at the Engineering Societies' Building, New York City, the annual report will be read, the president's address delivered and the ballot for officers canvassed.

**Engineers' Society of St. Paul, Minn.**—The following officers have been elected: President, H. J. Bernier; vice-president, J. D. Du Shane; secretary, D. F. Jurgensen; treasurer, L. P. Wolff.

**American Society of Landscape Architects.**—The annual dinner was held on Tuesday evening, January 12, in the rooms of the Transportation Club, on the top floor of the Manhattan Hotel, New York City. There was an unusually large attendance. The guest of the evening was Charles Mulford Robinson, of Rochester. In the absence in Europe of F. L. Olmsted, the president of the Society, Charles N. Lowrie, presided. Mr. Lowrie introduced the guest as the man who probably had done more than any one else in the United States for the beautifying of cities. Mr. Robinson took as his subject, "Beauty in Playgrounds," making considerable use of a paper contributed by him to the Playground Convention last Fall. A good deal of discussion followed, and Samuel Parsons made the plea that conditions in New York were so radically different from those up-State, or in other parts of the country, that what was practicable in other places was not practicable in New York. Mr. Robinson held that to that extent conditions in New York were abnormal, and that while it might be advisable in New York to put esthetic features and playground features side by side, as Mr. Parsons recommended, instead of attempting their combination, yet under normal conditions they should be combined. This point the paper had very earnestly urged, and it was generally approved.

**Ohio Electric Light Association.**—As a result of the efforts of Charles R. McKay and members of the Chamber of Commerce of Toledo, the annual convention of the Ohio Electric Light Association will be held in Toledo next summer, probably late in July. Mr. McKay, who is Superintendent of Light and Power for the Rail-Light, is president of the association. From 300 to 400 electric light men will probably attend the convention.

**Engineers' Society of Western Pennsylvania.**—The Society held its annual meeting January 19, in the Fulton Building, Pittsburgh, Pa. Annual reports were submitted by the standing committees. A flattering report of the society's financial affairs was made by the Finance Committee and by Professor A. E. Frost, the Treasurer. E. K. Morse and George T. Barnsley, who were delegates to the American Mining Congress, presented a resume of the organization's work at the December meeting. George T. Barnsley was elected president, Dr. Walter Riddle, vice-president, and Treasurer A. F. Frost was re-elected. S. A. Taylor and J. N. Chester were elected members of the Board of Directors. President Barnsley, after thanking the members for the honor conferred, spoke briefly on the conservation of the national resources. J. K. Lyons, the retiring president, read a paper on the big projects put under way in Western Pennsylvania during the last year that are of special interest to the members of the society. There are now about 900 members, and this year the scope of the work is expected to widen. Last year seven inspection trips were made.

**American Forestry Association.**—The session of the Forestry Association, Washington, D. C., marked a complete severance of official relations between that body and the Government. This was not due to discord or lack of co-operation, but because both sides consider they can do better work if there is no confusion in the public mind of the Forestry Association with the Government forest service. Heretofore the Secretary of Agriculture and the chief forester of the United States have been officers of the American Forestry Association. This year both asked to be relieved. Secretary Wilson was the retiring president. Former Gov. Curtis Guild of Boston was elected his successor. A long list of vice-presidents and directors, representing all sections of the country, was chosen. The list of officers follows: President, Curtis Guild, of Massachusetts; vice-presidents, J. Bachelder, New Hampshire; Andrew Carnegie, Pennsylvania; Charles W. Eliot, Massachusetts; W. W. Finley, Washington; B. Fernon, Ontario; David Francis, Missouri; Edward Everett Hale, Washington; George T. Oliver, Pennsylvania; Rutherford P. Hayes, North Carolina; James J. Hill, Minnesota; S. Weir Mitchell, Pennsylvania; George C. Pardee, California; George Walter Peabody, New York; Albert Shaw, New York; Charles P. Taft, Ohio; Charles R. Van Hise, Wisconsin, and Andrew D. White, of New York; treasurer, Otto Luebkert, Washington; directors, Philip W. Ayres, New Hampshire; Joshua Bailey, Pennsylvania; James H. Cutter, Massachusetts; Henry S. Graves, Connecticut; Curtis Guild, Massachusetts; William S. Harvey, Pennsylvania; George H. Maxwell, Illinois; George Whittlesey, Washington; Charles F. Nesbit, Washington, and Henry A. Pressy, Washington.

#### Calendar of Meetings

January 26-28.

**Ohio Engineering Society.**—Annual convention, Columbus, O.—Paul Hansen, Secretary, Harrison Building, Columbus.

January 27-29.

**Illinois Society of Engineers and Surveyors.**—Annual meeting, Chicago, Ill.—E. E. R. Tratman, Secretary, 1636 Monadnock Block, Chicago, Ill.

January 28.

**Canadian Society of Civil Engineers.**—Annual meeting, Toronto, Ont.—C. H. McLeod, Secretary, 413 Dorchester street, W., Montreal, P. Q.

February 1-2.

**National Paving Brick Manufacturers' Association.**—Annual convention, Seneca Hotel, Rochester, N. Y.—Will P. Blair, Secretary, Indianapolis, Ind.

February 1-6.

**National Brick Manufacturers' Association.**—Twenty-third Annual Convention, Rochester, N. Y.—Theo. A. Randall, Secretary, Indianapolis, Ind.

February 9.

**Connecticut Society of Civil Engineers.**—Annual meeting, Hartford.—J. Frederick Jackson, Secretary, New Haven, Conn.

February 17-18.

**New England Gas Association.**—Annual meeting, Boston, Mass.—N. W. Gifford, Secretary, East Boston, Mass.

March 2-4.

**Northwest Cement Products Association.**—Annual convention, Minneapolis, Minn.—J. C. Van Doorn, Secretary Security Bank Building, Minneapolis, Minn.

June 8-12.

**American Water Works Association.**—Twenty-ninth annual convention, Milwaukee, Wis.—J. M. Diven, Secretary, 14 George St., Charleston, S. C.

November 9-11.

**American Society of Municipal Improvements.**—Annual convention, Little Rock, Ark.—A. Prescott Folwell, Secretary, 241 W. 39th St., New York, N. Y.

## INCORPORATIONS

**Chattanooga Lighting Co.**, Chattanooga, Tenn.; capital, \$10,000. Incorporators: A. A. McGregor, O. A. Lane, Wallace C. Bathman and others.

**City Garbage Box Co.**, St. Louis, Mo., capital, \$5,000. Incorporators: Walter L. Thiele, F. M. Thiele and B. C. Lindsay.

**Clay Products Co. of Cuba**, Dover, Del.; capital, \$1,000,000. Incorporators: David W. Medbury, Henry S. Meyers, Arlington D. Isham, New York; Richard R. Kenney, Dover.

**Consolidated Water Companies**, Atlantic City, N. J.; to operate water works; capital, \$250,000. Incorporators: Samuel H. Hicks, Drexel Building, Philadelphia; Eli H. Chandler and Richard H. Robertson, Atlantic City.

**Eastern Petrolithic Co.**, Freeport, N. Y.; general contracting; capital, \$25,000. Incorporators: Archibald G. Patterson, Hempstead; J. Huyler Ellison and Alvin G. Smith, Freeport.

**Frederick Page Contracting Co.**, New York, N. Y.; general contracting; capital, \$5,000. Incorporators: Frederick Page, East Orange, N. J.; Thomas Ferguson, 146 East 128th street; Frederick M. Sanders, 111 Broadway, both of New York.

**Harvey-Burden Construction Co.**, St. Louis, Mo.; capital, \$10,000. Incorporators: George H. Harvey, Wm. A. Burden and Alexander Young.

**R. H. Howes Construction Co.**, New York, N. Y.; contracting, engineering and construction; capital, \$50,000. Incorporators: Ralph H. Howes and Hannah C. Howes, 319 West 94th street; William J. Coon, 245 East 31st street, all of New York.

**Humphreys & Glasgow**, New York, N. Y.; civil, mechanical, gas and electrical engineering; capital, \$100,000. Incorporators: Alex C. Humphreys, Morristown, N. J.; Emile Guillaudens, 70 West 46th street, New York; William W. Randolph, East Orange, N. J.

**Intercontinental Engineering Co.**, New York, N. Y.; engineering and contracting; capital, \$10,000. Incorporators: John R. Putnam, Charlotte B. Putnam, Reginald Traulschold, 126 Liberty street, New York.

**Hewitt Construction Co.**, Marion, N. C.; stock, \$50,000. Incorporators: A. R. Buffaloe, A. E. Hewitt and O. J. Holler.

**Montgomery & Cannelton Bridge Co.**, Montgomery, W. Va.; capital, \$50,000. Incorporators: O. J. Henderson and M. J. Simms, Montgomery; W. E. Beardslee, Clarksburg, W. Va.; W. N. Conger, Owego, N. Y.; Walter C. Hardy, Charleston, W. Va.

**Revilo Construction Co.**, Knoxville, Tenn.; capital, \$50,000. Incorporators: Wm. J. Oliver, H. L. Pike, H. B. Lindsay and others.

**Rock Creek Crushed Stone and Sand Co.**, Oklahoma City, Okla.; capital, \$5,000. Incorporators: C. C. Buxton, D. H. Boyd and W. H. Wyckoff.

**St. Louis Storage Battery Co.**, St. Louis, Mo.; to manufacture patented storage battery and other electrical devices; capital, \$200,000. Incorporators: Geo. S. Tourville, president-treasurer; Wm. Gardiner, vice-president; Oscar A. Morgner, secretary; John Stirren, general manager.

**Tutwiler Water & Light Co.**, Tutwiler, Miss.; capital, \$10,000. Incorporators: D. W. Harrison, A. J. Rylee, O. E. Bradley and others.

## THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Street Railways—Sanitation Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

## BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>STREET IMPROVEMENTS.</b>				
Ohio	Cleveland	Jan. 30, 11 a.m.	Grading, draining and improving York road in 2 twps. . . . .	A. B. Lea, County Surveyor.
Indiana	Delphi	Feb. 1, noon	Grading, graveling or macadamizing, etc., County roads. . . . .	M. G. Haun, County Auditor.
Indiana	Columbus	Feb. 1, 10 a.m.	Bldg. 2 miles macadam road, Columbus and Clay township lines. . . . .	John M. Davis, County Auditor.
Indiana	Decatur	Feb. 1, 10 a.m.	Constructing macadam road in Hartford Township. . . . .	H. S. Michaud, County Auditor.
Indiana	Logansport	Feb. 1 noon	Bldg. township line bet. Jacksons', Tipton and Deer Creek twps. . . . .	Geo. W. Cann, County Auditor.
Indiana	Crown Point	Feb. 1, noon	Constructing 3 gravel roads for County. . . . .	County Commissioners.
Pennsylvania	Dorranceton	Feb. 1	Brick paving on concrete, curb, grading, etc., 2 sts.; check \$1,000. . . . .	
Indiana	Vivay	Feb. 1, 1 p.m.	Constructing gravel road 15,825 ft. long in York township. . . . .	Wm. A. Aten, Chm. Street Com.
Indiana	Wabash	Feb. 1, 2 p.m.	Constructing gravel road in Washington township. . . . .	Scott Culbertson, County Auditor.
Minnesota	Moorhead	Feb. 1, 8 p.m.	Brick or creosoted wood block paving, 20,000 sq. yds. . . . .	Thomas Nugent, County Auditor.
New Jersey	Elizabeth	Feb. 1, 8:30 p.m.	Constructing sidewalk on Chilton St., bet. Sayre and Orchard. . . . .	H. E. Roberts, City Clerk.
Washington	Olympia	Feb. 1, 5 p.m.	Brick or creo. wood block paving, 17,000 sq. yds.; concrete walks, 11,500 sq. yds.; concrete curb, 13,000 lin. ft.; begin May 1. . . . .	N. K. Thompson, Street Com'r.
Wisconsin	Appleton	Feb. 1, 5 p.m.	Wood block paving on concrete, Washington & Midway Sts. . . . .	J. R. Dever, City Clerk.
Indiana	Williamsport	Feb. 1, 1 p.m.	Constructing gravel road in Liberty township. . . . .	E. L. Williams, City Clerk.
Indiana	Greenfield	Feb. 1, 2 p.m.	Bldg. 2.5 miles, 2.97 and .773 miles road; .63 mile of brick. . . . .	Robert L. Winks, County Auditor.
Indiana	Columbus	Feb. 1	Bldg. 2 miles macadam road, bet. Col. and Clay twps. . . . .	Chas. H. Troy, County Auditor.
Indiana	Fowler	Feb. 1, noon	Bldg. 15,340 ft. gravel streets and road in Fowler township. . . . .	John M. Davis, County Auditor.
Florida	Miami	Feb. 1, 11:30 a.m.	Bldg. rock road, also rock-surfacing portion of road. . . . .	Lemuel Shipman, County Auditor.
Indiana	Vincennes	Feb. 2, 2 p.m.	Constructing 8,483 ft. gravel road, 2 twps.; 3 contracts. . . . .	M. R. Kellum, Chm. Bd. Co. Com'r's.
Indiana	Paoli	Feb. 2	Bldg. Bromer and Camp. rd., N. E. twp., 10,737 ft. long. . . . .	John T. Scott, County Auditor.
Indiana	Crawfordsville	Feb. 2, 10 a.m.	Bldg. gravel road in Union and one in Brown township. . . . .	Alvin B. Ham, County Auditor.
Indiana	Bloomington	Feb. 2	Constructing 2 gravel roads. . . . .	B. B. Engle, County Auditor.
Indiana	Valparaiso	Feb. 2, noon	Constructing 2 gravel roads. . . . .	County Commissioners.
New York	Brooklyn	Feb. 3, 11 a.m.	Asphalt paving on concrete, grading, curbing sidewalks. . . . .	Stephen P. Corboy, County Auditor.
Indiana	Muncie	Feb. 3	Brick paving, etc., road Center twp., crushed stone, 2 roads. . . . .	Bird S. Coler, Boro. President.
Indiana	Kokomo	Feb. 3, 10 a.m.	Constructing 17 roads, each about 3 miles long. . . . .	County Commissioners.
Indiana	Bluffton	Feb. 3, 10 a.m.	Bldg. stone road on line between Adams and Wells Counties. . . . .	A. B. Easterling, County Auditor.
Ohio	Cleveland	Feb. 3, 11 a.m.	Grading, draining, etc., Columbia road. . . . .	O. D. Garrett, County Auditor.
Mississippi	Vicksburg	Feb. 3, noon	Grading, graveling, guttering Nat'l Park Ave., from city to park. . . . .	A. B. Lea, County Surveyor.
Indiana	Logansport	Feb. 3, noon	Bldg. 2 macadam roads; also stone road. . . . .	J. D. Laughlin, Clk. Co. Superv.
New York	Buffalo	Feb. 4, 11 a.m.	Grading and macadamizing Hamburg pike, 50 ft. wide. . . . .	County Commissioners.
Indiana	Frankfort	Feb. 4, 2 p.m.	Constructing 9 gravel roads for Clinton County. . . . .	F. G. Ward, Com'r of Pub. Wks.
Indiana	Rockville	Feb. 4	Constructing 2 gravel roads. . . . .	Chas. F. Cromwell, County Auditor.
Pennsylvania	Harrisburg	Feb. 4	Bldg. 1,900 ft. brick road and 9,318 ft. macadam, W. Mead twp. . . . .	County Commissioners.
Pennsylvania	Wilson	Feb. 4, 7 p.m.	Vit. brick or hillside block paving, sewers, etc., Locust St. . . . .	Jos. W. Hunter, State Hwy. Com'r.
Illinois	Downers Grove	Feb. 4, 7:30 p.m.	Brick paving, 45,595 sq. yds.; earth excavation 27,011 cu. yds. for roadways and 2,552 cu. yds. for parkways; 116 storm-water inlets and 66 manhole covers, adjusted to grade. . . . .	Maneece & Earl, Boro. Engrs., 424 Fourth Ave., Pittsburg.
Missouri	St. Louis	Feb. 5	Paving various streets and alleys; est. cost, \$122,285. . . . .	J. S. Lozier, Village Engineer.
Indiana	Tipton	Feb. 5	Constructing 2 gravel roads. . . . .	W. B. Dryden, Sec'y Bd. Pub. Impts.
Ohio	Cleveland	Feb. 5, noon	Brick and Medina stone paving, grading, curbing, sundry sts. . . . .	County Commissioners.
Indiana	Anderson	Feb. 5, 2 p.m.	Bldg. gravel road on line between Henry and Madison Cos. . . . .	W. J. Springborn, Pres. Bd. Pub. Serv.
Indiana	Lebanon	Feb. 5, 2 p.m.	Bldg. gravel road 9,160 ft. long on Boone & Clinton Co. line. . . . .	W. T. Richards, County Auditor.
Ohio	Cincinnati	Feb. 5, noon	Improving Kilby road, White Water, also road Anderson twp. . . . .	B. F. Herdrick, County Auditor.
Indiana	New Albany	Feb. 6	Brick or granitoid paving, Locust St.; estimate, \$5,723. . . . .	Fred. Dreihns, Clk. Co. Comrs.
Iowa	Indianola	Feb. 8, 7 p.m.	Paving 15,390 sq. yds. 3-in. creo. wood block on 5-in. concrete, 7,884 lin. ft. 6 x 20-in. concrete curb, 450 yds. extra excav. . . . .	Board of Public Works.
New York	New York	Feb. 9, noon	Furn. 12,000 tons 1 1/2 and 3 1/4-in. broken stone and screenings, also 8,000 tons, 2,500 tons and 12,500 tons, various districts. . . . .	Arthur Lee, City Clerk.
Wisconsin	Fond du Lac	Feb. 10	Cement paving 55,000 yds., 3 streets; asphalt, 8,000 yds., one st. . . . .	Geo. Cromwell, Pres. Boro. Richmd'd
Indiana	Fowler	Feb. 12, noon	Constructing 30,200 feet of gravel road. . . . .	E. W. Clark, Mayor.
Ohio	Barnesville	Feb. 12, noon	Delivering and breaking 340 rods of limestone on turnpike. . . . .	Lemuel Shipman, County Auditor.
Georgia	Savannah	Feb. 15	Furn. city with 5,000 sq. yds. granite paving blocks, f. o. b. . . . .	B. F. Mackall, Clk. Turnpike Co.
Illinois	Paris	Feb. 15	Brick paving 21,000 sq. yds.; Wm. Blackman, Eng'r. . . . .	Harry Willink, Dir. Pub. Wks.
Minnesota	St. Paul	Feb. 15	Improving Bald Eagle Lake Ave.; macadamizing or gravel. . . . .	Walter Logan, Clk. Bd. Local Impts.
Indiana	Spencer	Feb. 18, noon	Constructing 1 1/2 miles macadam road bet. Clay and Owen Cos. . . . .	Edw. G. Krahmer, County Auditor.
Indiana	Bloomfield	Mar. 2, 2 p.m.	Bldg. 2 gravel and macadamized roads, Wright and Stockton tps. . . . .	Geo. W. Edwards, County Auditor.
Illinois	Carlyle	Jan. 29	Improvements to water works and electric light plant. . . . .	Peter M. Cook, County Auditor.
Virginia	Richmond	Jan. 29, 5 p.m.	Bldg. flume or conduit, 5,000 ft. long, from settling basin to new pump house on foundation of present flume; bids invited for 48, 54 and 60-in. wood, steel, iron, rein. concrete, or any other character of construction; cost, \$75,000. . . . .	A. A. Wade, City Clerk.
Minnesota	St. Peter	Jan. 30, 9 a.m.	Sinking artesian well 600 ft. deep; 8-in. hole, piped 80 to 100 ft. at city power house. . . . .	E. E. Davis, Supt. City Water Works.
North Dakota	Jamestown	Feb. 1, 3 p.m.	Furnishing water meters in lots of 23 and 50. . . . .	Henry N. Benson, City Clerk.
Oklahoma	Anadarko	Feb. 1	Furn. 2 triplex pumps, 2 return tubular boilers, sewer and c. i. water pipe, hydrants, valves, etc.; flush tanks and manhole covers; O'Neil Eng. Co., Dallas, Tex., Eng'rs. . . . .	G. E. Lyman, City Auditor.
Pennsylvania	Avonmore	Feb. 1, 7 p.m.	Bldg. complete w. w. plant for Boro.; Robt. H. Wilson, C. E. . . . .	The Mayor.
Iowa	Denison	Feb. 1, 3 p.m.	Boring artesian well, 12-in. at surface, 4-in. or more at bottom; 2,000 ft. deep, if necessary. . . . .	Prof. W. E. Smeltzer.
Arkansas	Osceola	Feb. 1	Constructing \$25,000 water works. . . . .	M. D. Wright, Chm. Water Com.
Wisconsin	Richland Center	Feb. 2, 8 p.m.	Furn. 400-gal. triplex power pump for R. Sutton, City Clerk. . . . .	S. L. Gladish, Mayor.
Wisconsin	Kenosha	Feb. 2, 2 p.m.	Furn. and erecting hori cross-compound, high-duty pump, engine, with 6,000,000 U. S. gals. capacity. . . . .	W. G. Kirchoffer, Madison, Eng'r.
Oklahoma	Hugo	Feb. 2, 8 p.m.	Mat. and labor for w. w. plant, inc. brick power house, 3,000,000-gal. concrete reservoir, two 150-h.p. tubular boilers, two 2,000,000-gal. pumps, two 800-ft. air compressors; 82,945 ft. 4 to 14-in. c. i. pipe; 135 fire hydrants; 78 valves; 700 water meters and material for 700 house connections. . . . .	R. H. Moth, Supt. Water Works.
Maryland	Baltimore	Feb. 3	Bldg. water tank and tower at sewage disposal works; \$10,000. . . . .	W. L. Gibbs, Acting Mayor.
North Dakota	Minot	Feb. 4	Bldg. concrete and brick pumping station, complete with pumps, filters, etc., also steel water tower and tank, and 11 miles 6 to 16-in. water mains. . . . .	C. W. Hendrick, Ch. Eng. Sew. Com.
Florida	Key West	Feb. 5, 11 a.m.	Furn. condenser filter, feed water heater, etc.; also remodeling pumping and distilling plant at barracks. . . . .	E. S. Severance, City Engineer.
Arizona	Phoenix	Feb. 10, 4 p.m.	Pumping engine, 3,000,000-gal. cap.; cost, \$20,000. . . . .	Capt. C. H. Lanza, Q. M.
Minnesota	New Ulm	Feb. 15, 5 p.m.	Bldg. covered rein. concrete reservoir, 1,000,000 gals. capacity. . . . .	Robt. A. Craig, Supt. Water Works.
Kentucky	Sebree	Feb. 15, noon	Constructing complete system of water works for town. . . . .	H. F. Blomquist, City Engineer.
Manitoba	Winnipeg	Feb. 22, 11 a.m.	Furn. and erecting turbine pump with elec. motor for w. w. . . . .	C. H. Ramsey, Mayor.
Kansas	Wichita	Mar. 15, 7:30 p.m.	Constructing system of water works; est. cost, \$20,000; cert. check, \$10,000; plans, \$25; Hiram Phillips, St. L., Mo., Engr. . . . .	H. N. Ruttan, City Engineer.
Ontario	Kingston	Jan. 28, noon	Furnishing sewer pipe for city. . . . .	R. N. Dorr, City Clerk.
New York	Oswego	Jan. 29, 2 p.m.	Bldg. 12-in. tile sewer, etc., in Mitchell St., 9th to 10th St. . . . .	H. B. R. Craig, City Engineer.
Ohio	Toledo	Jan. 29, noon	Furn. material and bldg. sewer No. 1050. . . . .	John Smith, Com'r Pub. Wks.
Mississippi	Vicksburg	Feb. 1	Constructing storm sewer on Clay St. . . . .	Reynold Voit, Sec'y Bd. Pub. Serv.
Oklahoma	Anadarko	Feb. 1	Furn. sewer pipe and fittings, flush tanks, manhole covers, etc. . . . .	J. J. Hayes, Mayor.
Kansas	Herington	Feb. 1	Constructing sewers and sewage disposal plant; cost, \$50,000. . . . .	O'Neil Eng. Co., Dallas, Tex.
Kansas	Lawrence	Feb. 1	Furn. mat. and bldg. lat. sewer, Block No. 37, W. Lawrence. . . . .	Burns & McDonnell, K. C., Mo., Eng.
Kansas	Leavenworth	Feb. 1	Furn. c. i. pipe, etc., vit. pipe, etc., for sewers in Penitentiary. . . . .	F. D. Smith, City Clerk.
				Supt. U. S. Penitentiary.

Illinois.....	Decatur.....	Feb. 1, 2 p.m.....	Bldg. sewers in Millikin Add., inc. 680 ft. 18-in.; 350 ft. 15-in.; 550 ft. 12-in.; 784 ft. 10-in.; 616 ft. 8-in. pipe, 7 brick manholes, 7 catch-basins, 4 flush holes; 1,700 cu. yds. earth excavation; est. cost, \$2,787.29.....	A. B. Alexander, City Engineer. N. K. Thompson, Street Com'r. Board of Public Service. H. E. Roberts, City Clerk.
New Jersey.....	Elizabeth.....	Feb. 1, 8:30 p.m.....	Bldg. sewer on Jersey Ave., con. with joint sewer in Bayway.....	J. H. Dingle, City Engineer. City Clerk.
Ohio.....	Warren.....	Feb. 1.....	Constructing 1,250 ft. 12-in. sewer, Hall and Park Aves.....	Joseph Oliver, Mayor. Bird S. Coler, Boro. President. Oliver Stokes, Boro. Clerk.
Minnesota.....	Moorhead.....	Feb. 1, 8 p.m.....	Constructing 2 lateral sewers.....	
South Carolina.....	Charleston.....	Feb. 2.....	Furn. fol. supplies for 1 yr.: 8 to 24-in. t. c. pipe, Ts, and Ys, also laying pipe; iron castings, brick, lime, Rosendale and Portland cement, crushed rock, etc.....	P. L. Atherton, Chm. Sewer Comm. Howard Douglas, Comr. of Parks. F. R. Strong, Village Clerk.
Kansas.....	Marion.....	Feb. 2.....	Bldg. 2 1-2 miles main and lateral sewers in Dist. No. 3.....	Charles G. Sturtevant, City Clerk.
Ontario.....	Toronto.....	Feb. 2, noon.....	Bldg. Sec. 3, High-Level Interceptor, inc. 1,972 ft. 7.5 ft.; 2,419 ft. 7.75 ft.; 1,556 ft. 8-ft., 439 ft. 8.5 ft. circular sewer, etc.	James Knox Taylor, Wash., D. C.
New York.....	Brooklyn.....	Feb. 3, 11 a.m.....	Constructing sewers and sewer basins in various streets.....	T. Harry Jones, City Engineer. C. W. Swearingen, City Eng'r.
Pennsylvania.....	Wilson.....	Feb. 4, 7 p.m.....	Bldg. tile sewer, etc., and paving Locust St.	
Kentucky.....	Louisville.....	Feb. 5, noon.....	Contracts 21 and 22, Walnut St. sewer; 23, Clay St.; 24, St. Xavier St.; inc. 5,460 ft. concrete and pipe sewer, 18 to 30-in., inc. 315 cu. yds. concrete; depth of sewer, 6 to 10 ft.....	W. J. Crocken, City Engineer. City Clerk.
Alberta.....	Banff.....	Feb. 5, noon.....	Furn. 28 ft. 8-in.; 1,810 ft. 9-in.; 600 ft. 15-in. pipe; 30 6-in. off 15-in. and 60 6-in. off 9-in. sewer junctions; del. f. o. b. cars	E. A. Cary, Chm. Sewer Com.
Ohio.....	College Hill.....	Feb. 8, noon.....	Bldg. 6 to 12-in. vit. pipe sewers in 6 sts.; J. A. Stewart, Engr.	
Minnesota.....	Detroit.....	Feb. 10, 7 p.m.....	Furn. mat and bldg. sewer system, inc. gen. sewer, dist. sewers in Dists. 1 to 16 inclusive; joint sewer, Dists. 1 to 5 and Dist. 7, and joint sewer, Dists. 8 to 15; 2 sewer lifts, septic tank and storm water sewer; Loweth & Wolff, Old First Nat'l Bank, St. Paul, Engrs.	
Maryland.....	Baltimore.....	Feb. 10.....	Separating soil and waste lines from storm water system, Custom House.....	
Ontario.....	Brantford.....	Feb. 11, noon.....	Furn. and laying 2,250 ft. 12-in. extra strength sewer pipe, 635 ft. 12-in. c. i. pipe, 11 manholes, greatest cut, 32 ft., av., 17 1-2 ft.	
Montana.....	Great Falls.....	Feb. 15.....	Constructing sewer in Dist. No. 15.	
Illinois.....	East St. Louis.....	Feb. 17, noon.....	Bldg. system of concrete and pipe sewers, 33,500 ft., 3 to 10 1-2 ft. drain; 5 drainage and 2 sewage pumping engines, vertical, single-acting gas engines, dir. con. to horiz. cent. pumps.	
New York.....	Newburgh.....	Mar. 2.....	Constructing sewer in Robinson Ave., with laterals.....	
Iowa.....	Grundy Center.....	Mar. 8.....	Constructing 8 and 10-in. sanitary sewer.....	
			<b>BRIDGES</b>	
South Carolina.....	Spartanburg.....	Jan. 28.....	Replacing or repairing McMillin's steel bridge or bldg. covered wood structure; also bldg. covered wood bridge at Shoal.....	D. M. Miles, County Supervisor. L. J. Storey, City Clerk.
Iowa.....	Cedar Rapids.....	Jan. 28, 3 p.m.....	Bldg. riveted truss bridge, rein. concrete floor, E. 30th St.	Fred Dreihns, Clk. Co. Comrs.
Ohio.....	Cincinnati.....	Jan. 29, noon.....	Bldg. bridges on Bogart road and painting one, New Balto; also bldg. concrete bridge on Compton road, Springfield twp.	Capt. Earl I. Brown, U.S. Army, Wilmington.
North Carolina.....	Beaufort.....	Jan. 30, noon.....	Bldg. steel draw-span hwy. bridge, pile and concrete foundation.	T. J. Kauffman, County Auditor.
Ohio.....	Dayton.....	Jan. 30, 11 a.m.....	Bldg. sub and superstructure \$18,000 bridge over Miami River.	Sam'l A. Love, Chm. Co. Com'rs, Hammond.
Indiana.....	Gary.....	Feb. 1, noon.....	Bldg. bridge over Calumet River at Bdwy., rein. concrete, 3 66-foot arches, retain. walls, etc., 80 ft. wide; cost, \$37,500.	C. A. Baughman, City Engineer.
Iowa.....	Marshalltown.....	Feb. 1.....	Bldg. \$2,500 concrete culvert on 13th St.	J. P. Rogers, City Engineer.
Kansas.....	Topeka.....	Feb. 1.....	Bldg. concrete or steel bridge with concrete, brick or asphalt filled floor, 20-ft. rdwy.; live load, 200 lbs. per sq. ft., 27 ft. over 4 ft. water; waterway required, 2,840 sq. ft.	Geo. T. Redlington, Sec'y Pk. Com'rs.
Minnesota.....	St. Paul.....	Feb. 1.....	Bldg. rein. conc. bridge, Riverside Blvd.; 106 x 40 ft.	W. W. Miller, Clk. Co. Supervisors.
Mississippi.....	Greenville.....	Feb. 1.....	Constructing pile bridge over Black Bayou.	W. R. Pistole, Chancery Clerk.
Mississippi.....	Meridian.....	Feb. 1.....	Bldg. wooden bridge over Okitibeta Creek on Land Line road.	R. W. Draper, Clk. Bd. Supervisors.
Kansas.....	Batesville.....	Feb. 1.....	Bldg. iron bridge over river near Askew; also one nr. Sardis.	Bert Walter, County Clerk.
Kansas.....	Kingman.....	Feb. 2, 2 p.m.....	Bldg. 280-ft. bridge; also 160-ft. bridge; Co. furn. mat. and pile driver.	Harry Allison, City Clerk.
California.....	San Bernardino.....	Feb. 2.....	Bldg. bridge over Lytle Creek on W. First St., inc. 2 spans, each 110 ft. long, with 500 ft. of approaches.	S. M. Bagwell, Clk. Bd. Co. Superv.
South Carolina.....	Spartanburg.....	Feb. 2.....	Bldg. wood bridge at Motlow's Creek.	Reynold Voit, Sec'y Bd. Pub. Serv.
Ohio.....	Toledo.....	Feb. 3.....	Addl. floor beams and hangers, Cherry St. bridge.	D. M. Miles, County Supervisor.
South Carolina.....	Spartanburg.....	Feb. 4.....	Bldg. Bright's bridge over South Tyger River.	Stanley Struble, Pres. Co. Com'rs.
Ohio.....	Cincinnati.....	Feb. 5, noon.....	Bldg. concrete bridge over Muddy Creek, in Miami township.	Wright Prickett, County Judge.
Arkansas.....	Mena.....	Feb. 6.....	Bldg. 3 Co. bridges over 3 rivers; appropriation, \$19,000.	Rudolph Kleberg, Jr., County Judge.
Texas.....	Cuero.....	Feb. 6.....	Bldg. bridge over Guadalupe River, near Hochheim.	W. E. McGurren, Chm. Co. Com'rs.
Oklahoma.....	Lawton.....	Feb. 9.....	Bldg. 75-ft., also 32-ft. span steel bridge with stringers.	Constructing Quartermaster.
Iowa.....	Fort Des Moines.....	Feb. 10, 3 p.m.....	Bldg. steel highway bridge at target range.	Hans Anderson, County Auditor.
North Dakota.....	Grand Forks.....	Feb. 12, 10 a.m.....	Bldg. all-steel and wooden bridges ordered by County in 1909.	A. B. Lea, County Surveyor.
Ohio.....	Cleveland.....	Feb. 20, noon.....	Bridge work, per report No. 2,189; 2 culverts, Newburg twp.	County Clerk, Miles City.
Montana.....	Powderville.....	Mar. 1.....	Constructing bridge over Powder River for County.	Fred. N. Carter, County Clerk.
Arkansas.....	Paris.....	Mar. 4.....	Constructing 6 bridges for County.	
			<b>LIGHTING AND ELECTRICITY</b>	
Pennsylvania.....	Carlyle.....	Jan. 29.....	Improvements to electric light plant and water works.	A. H. Wade, City Clerk.
Massachusetts.....	Salem.....	Feb. 1, 10:30 a.m.....	Furn. and setting elec. fixtures in County Court House.	C. H. Blackall, 20 Beacon St., Boston.
Oregon.....	Eugene.....	Feb. 1.....	Grading canal for power plant on McKenzie River, 3 3-4 miles long, 20 ft. wide at bottom; Frank C. Kelsey, Portland, C. E.	
Wisconsin.....	Richland Center.....	Feb. 2, 8 p.m.....	Furnishing 400-gal. triplex pump; W. G. Kirchoffer, Eng'r.	J. D. Matlock, Mayor.
California.....	Ontario.....	Feb. 2.....	Gas franchise for light, heat, etc., for 50-year period.	Reuben Sutton, City Clerk.
New York.....	Buffalo.....	Feb. 3.....	Engine and dynamo, switchboard, new feed-water heater and changes to exhaust mains at State Hospital.	R. O. Brackenridge, Town Clerk.
Ohio.....	Cleveland.....	Feb. 5, noon.....	Furnishing 8,000 16-in. and 2,000 14-in. boulevard glass globes and 140,000 gas mantles.	T. E. McGarr, Sec'y St. Com. Lunacy.
Missouri.....	St. Louis.....	Feb. 5, noon.....	Lighting with mantle lamps, certain sts., etc., also furnishing electricity for lighting bldgs. and lighting sts., etc., both for 10 years; 21,929 mantles, \$700,000., 1,196 arcs, \$130,000; 1,003 incandescents for bldgs., \$30,000.	E. H. McIntosh, Sec'y Bd. Pub. Serv.
Saskatchewan.....	Saskatoon.....	Feb. 5, 5 p.m.....	Supply of 500 h. p. boilers in two or three units for city.	
Ohio.....	Colbus Barracks.....	Feb. 8, 10 a.m.....	Furn. and install. transformer, etc., underground, etc., con., etc.	A. J. O'Reilly, Pres. Bd. Pub. Imp.
Florida.....	White Springs.....	Feb. 10.....	Bldg. \$3,000 power plant for Suwanee Riv. RR. & Pow. Co.	E. L. White, Electrical Supt.
Virginia.....	Nat'l Soldiers' H.....	Feb. 10, 1:30 p.m.....	Power house and equipment, tunnels, etc., for Soldiers' Home.	Capt. H. J. Hirsch, Q. M., U.S. Army.
Illinois.....	Chicago.....	Feb. 17.....	Bldg. municipal electric light plant in ten mos.; cost, \$151,250.	D. G. Ziegler & Co., Jacksonville, Fla.
Wisconsin.....	Milwaukee.....	Feb. 17, 10:30 a.m.....	Furn. and erecting complete gas producer and gas engine electric lighting plant in bldg. furnished; \$22,500 check.	John T. Hume, Treas. of Home.
Alberta.....	Lethbridge.....	Mar. 1.....	Bldg. mun. power plant; Smith, Kerr & Chace, Toronto, Engrs.	John J. Hanberg, Com'r Pub. Wks.
			<b>MISCELLANEOUS</b>	
Missouri.....	St. Louis.....	Jan. 28.....	Bldg. No. 47 engine house and heating plant; \$20,000.	C. J. Poetsch, Pres. Bd. Pub. Wks.
Missouri.....	St. Louis.....	Jan. 29.....	Bldg. entrance and public comfort station, \$16,000.	Geo. W. Robinson, Sec'y-Treas.
Ontario.....	Ottawa.....	Jan. 29, 4 p.m.....	Furn. 160,000 bbls. cement for various canals.	
Oklahoma.....	Claremore.....	Feb. 1.....	Erecting Court House and jail for Rogers County.	A. J. O'Reilly, Pres. Bd. Pub. Imps.
Pennsylvania.....	Philadelphia.....	Feb. 1, noon.....	Borings necessary to show nature of Dela. River bottom on site of proposed Dock St. and Vine St. piers.	A. J. O'Reilly, Pres. Bd. Pub. Imps.
Mississippi.....	Fayette.....	Feb. 1.....	Bldg. system of canals and levees; 14,000 cu. yds. work.	L. K. Jones, Sec'y Dept. Railways and Canals.
Minnesota.....	Le Sueur Center.....	Feb. 2.....	Furnishing 500 feet of fire hose.	D. W. Lipe, County Clerk.
Dist. of Columbia.....	Washington.....	Feb. 2, 2 p.m.....	Furnishng 80 to 184 filing cases 5 1-2 ft. long, 5 ft. 10 3-4 inches high, 1 ft. 8 1-4 in. deep; each to contain 48 drawers, 15 3-4 in. wide, 19 1-8 in. deep, 4 1-2 in. high, over all; oak stain and hard oil finish; drawers and cases together or separate, for money order file cases.	John C. Grady, Dir. Wharves & Fer.
Illinois.....	Aledo.....	Feb. 4, 10 a.m.....	Erecting fireproof jail and sheriff's residence for County.	C. H. Jenks, C. E., Gum Ridge Drain. District.
Pennsylvania.....	Wilkes-Barre.....	Feb. 5, noon.....	Furnishing two police alarm signal boxes of best type.	J. W. Morrison, Village Recorder.
Ohio.....	Canton.....	Feb. 6, noon.....	Bldg. 17 enclosed fire escapes for various school bldgs.	L. A. Coolidge, Asst. Sec'y, Treas. Department.
Indiana.....	Gary.....	Feb. 9, 3 p.m.....	Bldg. 2-story and base, bldg. for fire, police, etc.; 8 cells, etc.	Whitsett & Drury, Moline, Archs.
Georgia.....	Fitzgerald.....	Feb. 11.....	Bldg. jail, J. R. McEachron, Peachtree St., Atlanta, Arch.	Fred. H. Gates, City Clerk.
Tennessee.....	Madisonville.....	Feb. 11, noon.....	Erecting jail bldg. for Monroe County.	W. C. Lane, Clk. Bd. Education.
South Dakota.....	Redfield.....	Feb. 17, noon.....	Erecting jail building; C. E. Eastman, Des Moines, Ia., Archs.	C. O. Holmes, Town Clerk.
			Board of Com'rs, Ben Hill Co.	
			Bldg. Com., care of County Clerk.	
			Auditor of Spink County.	

## STREET IMPROVEMENTS

**Oakland, Cal.**—Resolutions requesting an ordinance from the Council, the provisions of which, when carried out will make Oakland the finest paved city in the West, were adopted by the Board of Public Works; Board has decided upon plans drawn by the City Engineer and the County Superintendent of Streets which establish a street improvement district including the business and manufacturing centers of the city; district is to be paved with asphalt, asphalt macadam and with paving blocks; work is to progress through at least five years and will when completed represent an expenditure of nearly one million dollars.

**Oakland, Cal.**—The Street Committee has recommended that Council appropriate \$5,000 for compensation to property owners who had already paid for improvements on Piedmont avenue; Board of Public Works will pave Piedmont avenue with asphalt.

**Oroville, Cal.**—The City Trustees have instructed the City Attorney to furnish the Board information as to laws governing street work; streets in the business portion of the city will be paved with asphalt; in the residence portion crushed rock will be used in making permanent streets.

**Hartford, Conn.**—The State Highway Commissioner has received the following road plans: From J. E. Egan, Engineer, 10,150 linear feet of main road, from Springfield, Mass., in the town of Stafford; from E. B. Harger, Engineer, 5,500 linear feet on North Main street, Ansonia; from Daboll & Crandall, Engineers, 15,700 linear feet on New London and Lyme Turnpike in the towns of East Lyme and Waterford; from W. H. Knight, Engineer, a section on the Goshen-Falls Village Road in the town of Goshen.

**Washington, D. C.**—The Senate has passed an amendment providing an appropriation of \$50,000 for a survey of the route of the proposed Lincoln highway from Washington to Gettysburg.

**Washington, D. C.**—Engineer Commissioner Cosby has ordered that Lamont street, northwest, be temporarily improved at a cost of \$200; also that the regulation of the surface of the islands in the plaza and the coverings of the same with stone screenings be authorized, at a cost of \$900.

**Fort Pierce, Fla.**—St. Lucie County has postponed date of election for voting on issuance of \$150,000 of bonds for road construction from January 19 to April 20.

**Green Cove Springs, Fla.**—Clay County will vote Feb. 16 on \$75,000 bond issue for construction of paved, macadamized or other hard-surfaced roads, together with necessary culverts and bridges; road will be constructed to connect with Duval County road on north and Putnam County road on south, forming continuous thoroughfare from Jacksonville to Palatka, Fla.—M. W. Griffin, Clay County Commissioners.

**Atlanta, Ga.**—Citizens are considering the repaving of the entire length of Decatur street with some permanent smooth pavement.—M. L. Sively, Secretary of Citizens' Committee.

**Augusta, Ga.**—Augusta-Aiken Highway Association will immediately construct the proposed cement-gravel road between Augusta and Aiken, S. C.; about five miles of new road will be built.—J. C. Lamar, President.

**Lawrenceville, Ga.**—Citizens of Gwinnett County will vote on the question of issuing \$30,000 in bonds for road improvements.—A. T. Green, Chairman of Board of County Commissioners.

**Rome, Ga.**—The Board of Public Works will pave Broad street and dispense with park for distance of 54 feet north of the property line.

**Aurora, Ill.**—Citizens on High street, Pigeon Hill, are urging improving unpaved roadway in this and other streets.

**Chicago, Ill.**—City Engineer John Ericson has prepared plans for a municipal asphalt repair plant.

**Chicago, Ill.**—The Commissioners on Streets and Alleys have recommended that West Fullerton avenue be paved with granite block; cost, \$137,000.

**Indianapolis, Ind.**—The Board of Public Works has advertised bids for paving, curbing and improving the following streets: Sanborn, with brick; Aford, cement walk and curb; Lowell, bitulithic, brick gutters, curb; 37th, with gravel roadway, brick gutters, cement sidewalk and curb; Georgia, brick roadway, cement curb.—Blaine H. Miller, City Engineer.

**Mishawaka, Ind.**—City Engineer W. S. Moore will prepare plans for paving West Second Street to the city limits.

**New Orleans, La.**—The Budget and Assessment Committees are considering the paving of Pine Street with asphalt and the repaving of Elysian Fields Street.

**Davenport, Ia.**—City has called bids for four more streets and plans have been called for 14 more streets; length, five miles; cost, \$40,000.

**Des Moines, Ia.**—Council has passed bills

for paving Hubbell and West Thirteenth streets with asphalt; also West Third and West Locust streets with creosote blocks.

**Des Moines, Ia.**—City is planning for \$200,000 worth of paving.—John W. Budd, City Engineer.

**Webster City, Ia.**—City Engineer Etnyre, of Council Bluffs, is conferring with the City Engineer of this city with reference to a big batch of new paving which has been ordered and will help the Engineer in making his specifications.

**Abilene, Kan.**—Council will pass resolutions for the paving of Buckley avenue, North Broadway, North Spruce, North Cedar and North Third streets.

**Leavenworth, Kan.**—Council has decided to regrade and pave Seneca and Miami streets.—J. H. Kirmeyer, City Clerk.

**Topeka, Kan.**—Council has passed a petition for pavements on Mulvane, Hunter, Monroe, Buchanan, Fifteenth and Eleventh streets.

**Topeka, Kan.**—Contracts for street paving will include the placing of a metallic street sign on the curbs at the intersections of all streets; the Street and Walks Committee has decided to pave 6½ blocks during this year.

**Lexington, Ky.**—The Board of Public Works has appropriated \$32,897.50 for the maintenance and reconstruction of macadam streets and repairs of brick streets; also \$11,102.50 for the reconstruction and \$10,000 for the oiling of streets.

**Harrisonburg, Va.**—Bids will be received by N. R. Cotton, President of Police Jury, for building five miles of road from Trinity on Harrisonburg road.

**New Orleans, La.**—Property owners on Coronado street between Jackson and Napoleon avenues are discussing the paving of that thoroughfare with asphalt.

**Baltimore, Md.**—The State Geological Survey is considering an expenditure of \$250,000 during this year for road construction, provided various counties appropriate a similar fund, including \$50,000 on the Washington and Baltimore Boulevard, now about two-thirds completed.—W. W. Crosby, Chief Engineer.

**Baltimore, Md.**—The Park Board will expand \$9,000 to complete paving of the mall at Patterson Park.—F. C. Latrobe, President.

**Denton, Md.**—Caroline County will grade and macadamize 1½ miles road between Federalsburg and Reliance; work includes grading and macadamizing; contract will soon be awarded.—I. L. Dukes, Clerk County Commissioners.

**Lawrence, Mass.**—Council has passed to be enrolled an ordinance for the paving of Lawrence street from Common to Park street with granite blocks laid in sand cushions with cement grout, at a cost not to exceed \$35,000.

**Springfield, Mass.**—The Board of Public Works is considering the extension of North street southerly from Carew to Liberty street.

**Worcester, Mass.**—Petitions are to be presented to the Board of Aldermen asking that a street be constructed from Quinsigamond to Blithewood avenue.—John P. Moberg.

**Kalamazoo, Mich.**—City Engineer Johnson has estimated that the paving for 1909 will cost \$253,274.59; streets for which estimates were ordered, together with the number of square yards of paving to be laid, provided the work is done, are as follows: Vine street, 9,739.8 square yards; Burdick street, 7,944.4; Church street, 7,731; Douglas avenue, 7,126.4; Elm street, 2,817.5; Stuart avenue, 5,577; Burdick street, 12,495; Walnut street, 6,152.7; Harrison street, 3,041.67; Gull street, 7,027; Lake street, 8,116.65, and Cooley street, 541. Vine street has already been ordered improved.

**Gulfport, Miss.**—The Commercial Union is considering the paving of the front of the city for a distance of five miles by the issuance of bonds.

**Carthage, Mo.**—Council has ordered the grading and macadamizing of Orchard street from Central avenue to Chestnut street.—I. F. Shannon, City Clerk.

**Kansas City, Mo.**—The Board of Public Works is considering the laying of asphalt paving on Eighth, Wyoming, Scarritt, Seventh, Granman, Ninth, Jackson, Mercer and Pitt streets.

**Boonton, N. J.**—Mayor C. J. Kapp has recommended the improvement of streets and a sewerage system.

**Glen Ridge, N. J.**—Mayor White has recommended the surfacing of streets and a generous appropriation for streets and roads.

**Hackensack, N. J.**—Citizens will vote, January 28, on \$60,000 bond issue for improving the road, street and highways within the limits of the jurisdiction of the Hackensack Improvement Commission.—Chas. Flubacher, Secretary.

**Newark, N. J.**—The Board of Freeholders have approved a \$177,000 bond issue for road improvements.

**New Brunswick, N. J.**—Bids will be re-

ceived Jan. 30, 11 a. m., for \$125,000 road improvement bonds.—William T. Stacey, Chairman of the Finance Committee.

**Perth Amboy, N. J.**—County Engineer M. F. Larson is preparing maps for the county roads which are to be graded and macadamized this coming summer: List of other roads about the county and their relative lengths, which are to be improved during the coming summer are: New Market road to Plainfield, 1.68 miles; Plainsborough and Cranbury road, 2.46 miles; South River turnpike, 2.75 miles; road between Helmetta and Spotswood, 2.70 miles; Milltown road, 1.50 miles; road between Jamesburg and Helmetta, 1.32; Trenton-New Brunswick turnpike, 3 miles; Jefferson avenue to Dunellen, intercounty road, on the boundary line between Middlesex and Union counties, to be paid for by both counties, 1.50 miles.

**Verona, N. J.**—Mayor Robert Palm has recommended the grading of streets, a sewerage system, the erection of a town hall and adequate fire protection.

**Buffalo, N. Y.**—Bids have been advertised for macadamizing the Hamburg turnpike; cost about \$32,000.

**Newburgh, N. Y.**—Council is considering the permanent improvement of South Water street, at a cost of \$42,200.—D. J. Coulant, City Clerk.

**Syracuse, N. Y.**—Council has made legal the ordinances passed for pavements on Burnet avenue, McBride and James streets; total length, 1.96 miles; the Board of Aldermen is urging stone crosswalks throughout the city instead of wooden ones; an item of \$15,000 is favored for stone crossings.

**Salisbury, N. C.**—City is considering the improvement of several blocks on streets leading to principal country roads.

**Tryon, N. C.**—The Highway Commission will improve the new road from Tryon to Columbus, N. C.; \$4,000 will be expended.—C. M. Howes and B. L. Ballenger, Commissioners.

**Cleveland, O.**—A bond issue of \$225,000 is being urged for street paving.

**Dayton, O.**—Council has adopted resolutions for sidewalks on Valley, Goodhue and Chapel streets, and for paving the first alley north of Cambridge, Burns and Hickory streets; also received resolutions ordering plans prepared for paving Johnson and Clover streets and improving Grand and Herman avenues.

**Hamilton, O.**—Council has received resolutions declaring it necessary to improve South Fifth street, from Henry street to Central avenue and Millville avenue.

**Hamilton, O.**—Council is considering an appropriation of \$10,375 for repairing the streets for six months.

**Jeanette, O.**—The State Highway Board has been petitioned to pave instead of macadamize the proposed boulevard between Greensburg and this city; cost will not exceed macadamizing by over \$2,000.—Jos. W. Hunter, State Highway Commissioner.

**Marion, O.**—Bids will be received February 5 for \$25,000 street improvement bonds.—H. S. Elliott, City Auditor.

**Oakley, O.**—Proposals will be received Feb. 1 for the purchase of \$773.65 of 5 per cent, Webster and Williams avenue cement sidewalk bonds.—Oscar Kosche, Village Clerk.

**Rocky River, O.**—Bids will be received February 11 for \$9,020 street improvement bonds.—R. W. Bassett, Village Clerk.

**Warren, O.**—The Good Roads Commissioners of District No. 1, of Trumbull County, have decided to issue \$60,000 road bonds for the extension of the present pike system; bonds will be sold on February 23.

**Youngstown, O.**—The Board of Public Service and the County Road Supervisors are considering the proposed paving of the Mahoning avenue extension; Supervisors have \$15,000 for macadamizing this stretch of road and it is proposed that the Service Board add to this amount and pave the street with brick.

**Oklahoma City, Okla.**—Council will order the extension and improvement of South Robinson street to Capitol Hill; City Engineer W. A. Burke has estimated cost on brick, asphalt, macadam and oil surface, and the amounts ranged from \$30,000 to \$45,000; also estimates for the paving of Thirteenth street.

**Camp Hill, Pa.**—The State Highway Department is about to experiment in Cumberland County with a stretch of road built after the manner of the New York State highways; road will be built partially within the borough of Camp Hill, just a few miles from the Susquehanna River.

**Greensburg, Pa.**—The State Highway Commissioner, Jos. W. Hunter, has advertised bids for the construction of an improved brick highway between Jeanette and this city; length, 23,900 feet.

**Harrisburg, Pa.**—Council has authorized the opening and grading of Thirteenth street from Berry Hill to Sagamore street.—Chas. Miller, Clerk of Council.

**Johnstown, Pa.**—Mayor Alex Wilson has recommended the paving of Valley pike and Ash street; also one of the thoroughfares in the Seventeenth Ward.

**Mount Penn, Pa.**—Citizens will vote, Feb. 16, on \$10,000 bonds for improving streets.

**New Castle, Pa.**—C. H. Milholand, City Engineer, has prepared plans for paving 30,000 square yards on Elm street, on concrete base, with 1,000 linear feet of sand-stone curb.

**Philadelphia, Pa.**—Specifications providing for both a wooden block and an asphalt pavement for Market street are being prepared by W. R. Benson, Chief of the Bureau of Highways; bids will be asked this week.

**Philadelphia, Pa.**—Council has passed an ordinance for the paving of Allison, Brown, Catharine, Christian, Fifty-second, Fifty-ninth, Graham, Ninth, Stiles, Station, Rockland and Taylor streets, Park, Washington and Susquehanna avenues and George's lane.—J. E. Reyburn, Mayor.

**Schaefertown, Pa.**—Citizens are urging the grading and macadamizing of Centre Square; also the construction of a State road through the town.

**York, Pa.**—Petitions for street paving covering 33 blocks of the city have been signed up to the present time, according to the statement of the Highway Commissioners; petitions for the paving of Poplar street from Belvidere avenue to West street and from Belvidere to Richland avenue will be presented.

**Charleston, S. C.**—R. G. Rhett, Mayor, is considering the construction of boulevards and a sea-wall and boulevards extending from White Point Gardens to Chisholm's Mill; length,  $\frac{3}{4}$  of a mile; plans provide for 60-foot driveway; cement sea-wall, 4,000 feet long, to cost about \$150,000; reclamation of land between sea-wall and shore line, etc.; entire project will probably involve expenditure of \$250,000.

**Columbia, S. C.**—Citizens are considering the submitting to the Legislature of a bill authorizing an election on a constitutional amendment allowing cities in this State of a certain size to tax the property of abutting property owners for street improvements; plan is to require property owners on each side of the street to be improved to pay one-third of the cost of the improvements and the city to pay one-third of the remaining cost.

**Cookeville, Tenn.**—Putnam County will not vote on \$100,000 bond issue for road construction.

**Decaturville, Tenn.**—Decatur County has granted 20-year franchise to L. H. Burke, Parsons, Tenn., for turnpike road between Decaturville and Parsons; five miles.

**Jonesboro, Tenn.**—Citizens of Washington County will vote March 13 on \$150,000 bond issue for road improvements.

**Knoxville, Tenn.**—Citizens of South Knoxville are considering a petition for the creating of a taxing district out of the territory south of the Tennessee River, so that sidewalks and streets may be built.

**Knoxville, Tenn.**—John G. Duncan Company, Box 506, Knoxville, Tenn., is considering the purchase at once of 5, 8, 10-ton second-hand rollers.

**Memphis, Tenn.**—The City Club has endorsed proposed \$1,000,000 bond issues, \$800,000 to be used for streets, bridges and culverts and \$200,000 for a main sewer across the southern part of the city.

**Dallas, Tex.**—Residents of Oak Cliff have petitioned for the grading and macadamizing of Zang's boulevard from Davis street to Twelfth.

**Galveston, Tex.**—Bids will be received Jan. 28 by Board City Commissioners for paving 23d street with 4,235 square yards vitrified brick and 1,158 linear feet concrete curbing.—V. E. Austin, Commissioner of Streets and Public Property; A. T. Dickey, City Engineer.

**Galveston, Tex.**—The City Commission will advertise bids for paving Tremont street and mudshelling 25th and 37th streets and Ave. K.

**San Marcos, Tex.**—Citizens will vote on \$5,000 bonds, proceeds to be used in improving the streets and alleys of the city.

**Charlotte Court House, Va.**—Citizens of Charlotte County have voted an issue of \$100,000 bonds for road improvements; about \$165,000 will be expended on roads.

**Danville, Va.**—The Board of Aldermen has adopted an ordinance for the paving of West Main street at cost of \$1,012.40.

**Seattle, Wash.**—Council has ordered the grading of Sixty-sixth street and East and West Boulevard; planking of Spokane avenue and concrete walks on Madison street.

**Seattle, Wash.**—City Engineer R. H. Thomson is urging the extension of Magnolia Way from the end of Second avenue to the foot of Harrison street.

**Seattle, Wash.**—City Engineer R. H. Thomson has estimated the cost of the following street improvements: East 65th street and other streets, grading, \$20,300; Madison street, from Third avenue to Ninth

avenue, paving, \$6,000; South and West Green Lake Boulevard and other streets, grading, \$23,600.

**Seattle, Wash.**—Councilman J. T. Armstrong's bill providing for the condemnation for a right-of-way for an air-line street leading from Fremont to Ballard, has been approved by the Street Committee; proposed street will extend from Fremont avenue and Blewett street to Market street in Ballard, and the estimated cost of the land to be taken is \$85,000.

**Tacoma, Wash.**—Council has received petitions for the improving of South G, North Twenty-sixth, North Twenty-fifth, South Yakima and East K streets.

**Toronto, Ont., Can.**—City is considering paving of portions of St. Patrick street, Anderson, Agnes and Wilton avenues with granite block; cost, about \$277,120.

#### BIDS RECEIVED AND CONTRACTS AWARDED

**Anniston, Ala.**—City has awarded contract to E. J. O'Brien, of Anniston, for building boulevard from Edgemont Cemetery to city limits of Oxford; boulevard to be 60 feet wide; 30 feet will be macadamized at once.

**Gadsden, Ala.**—City has awarded contract to Charles O. Duncan, of Gadsden, for construction of 5,000 square yards of cement sidewalks at 85 cents per yard, and 150 square yards driveway at \$1 per yard, on Eleventh, Twelfth, Chestnut and Bay streets.

**Jacksonville, Fla.**—The Board of County Commissioners opened bids as follows for constructing a cement road from Enterprise street to the Highway section: Logan Coal & Supply Company, 84 cents per square yard, and M. R. Garretson, 82 $\frac{1}{2}$  cents per square yard.

**Pensacola, Fla.**—Whiddon & Kennedy, Birmingham, Ala., have been awarded contract for cement 1:2 sidewalks, one inch thick on 4-inch concrete, 1:2 $\frac{1}{2}$ :5 base, at 10 cents per square foot; excavation, 30 cents per cubic yard allowed.—L. Earle Thornton, City Engineer.

**Jeffersonville, Ind.**—Thos. F. O'Neill has received the contract for improving Sixth street for \$7,069.

**Shenandoah, Ia.**—Contract for paving with brick and curbing Battle avenue and Elm street, about 7,000 square yards, has been awarded to Rankin & Schwartz, city, at \$1.80 per square yard.—Thos. W. Keenan, City Clerk.

**Emporia, Kan.**—Haskins & Ramsey has been awarded contract for 14,000 square yards 4-inch brick on 8-inch gravel at \$1.38 per square yard; 500 cubic yards earth excavation at 35 cents and 7,000 linear feet concrete combined curb and gutter at 60 cents; total \$25,000.—Alva J. Smith, City Engineer.

**Wichita, Kan.**—The following bids were opened for paving Eighth and Twelfth streets: Metropolitan Engineering & Construction Company, asphalt, \$1.83; Cleveland Trinidad Paving Company, five bids, ranging from \$1.69 to \$1.99 per square yard.

**Detroit, Mich.**—Lower bids for paving brick were received this year by the Department of Public Works than were turned in a year ago. The following bids were opened and tabulated January 15: Minerva block, Metropolitan Brick Company, per square yard, guaranteed three years, delivered on the street, 84 cents; last year, 85.4 cents. Massillon block, Massillon Stone and Fire Brick Company, 84.4 cents; last year, 85.4 cents. Collinwood, Deckman, Duty Company, 84.6 cents; last year, 85.5 cents. D. & D. Deckman Duty Company, 83.8 cents; last year, 84.5 cents. Medal Malvern Brick Company, 84 cents; last year, 85 cents. Logan block, Logan Brick Company, 79.8 cents; last year, 83.6 cents. Wooster, Wooster Shale Brick Company, 83.9 cents; last year, 82.29 cents.

The following new bids were received: Conneaut, United Brick Company, 89.4 cents; Canton, Metropolitan Brick Company, 84.6 cents; Champion, Robert M. Adams, 77.9 cents; Bessemer, Bessemer-Lincoln Company, 84.2 cents; Nelsonville, H. B. Stevens, 87 cents; Pittsburgh-Nelson, Bartlett Company, 82 cents; Saginaw block, Bartlett Company, 88 cents; Portsmouth block, Portsmouth Paving Brick Company, 91.8 cents; Townsend, T. B. Townsend Brick Company, 83 cents.

**Duluth, Minn.**—Swan Holquist was awarded the contract by the city for grading and bridging East Second street between Dawson and Hudson avenues, at \$7,516.

**Flemington, N. J.**—The Board of County Freeholders received bids for the construction of the macadamized road from Flemington to Pleasant Run, a distance of about six miles. Sixteen bids were received. The contract has been awarded to Van Keuren & Son, of Newark, at \$39,887. The other bidders were: John H. Hurley, Trenton, \$60,358; Richards & Gaston, Somerville, \$43,949; Daily Construction Company, Flem-

ington, \$52,595; W. S. Swackhamer & Co., German Valley, \$50,000; John Ginder, Trenton, \$47,909; George M. Frech, Somerville, \$46,599; A. B. Hager & Co., Rutherford, \$58,125; George K. Crouse and J. K. Jenson, Perth Amboy, \$68,112; John McNabb, Bound Brook, \$48,451; Delaware River Quarry and Construction Company, Lambertville, \$47,081; E. C. Humphrey, Hackensack, \$50,084; Miles Tighe Construction Company, Easton, \$52,896; Salmon Bros., Stanhope, \$53,397; Monmouth Contracting Company, Red Bank, \$53,982; Bushkill Quarry and Construction Comptny, Easton, \$46,919. The contract calls for the road to be completed by October 15, 1909. The road will connect with the stone road recently completed from the Somerset County line through Whitehouse to a point near Pleasant Run.

**Jersey City, N. J.**—The J. F. Shanley Company, 26 Exchange place, has been awarded the contract by the Board of Street and Water Commissioners for improving Randolph avenue, 1,814 square yards of brick pavement.—George T. Boutron, Clerk.

**New York, N. Y.**—W. J. Fitzgerald, 547 West Forty-fifth street, was the lowest bidder, at \$14,976, for paving Varick and White streets with granite blocks for the Borough of Manhattan.—John F. Ahearn, Borough President.

**Syracuse, N. Y.**—Bids for street improvements have been received by the Board of Control and Supply, as follows:

Paving South State street, from Colvin street to Brighton avenue, a distance of five blocks, and for which City Engineer Henry C. Allen had made an estimate of \$25,800:

Trinidad Asphalt, with Stone Curb—Central City Paving Company, \$22,299.48; F. J. Baker, \$23,070; Warner-Quinlan Asphalt Paving Company, \$23,188.10.

Same with Combination Curb and Gutter—Central City Paving Company, \$21,494.98; Fred J. Baker, \$22,533; Warner-Quinlan Asphalt Paving Company, \$22,757.20.

Acme California Asphalt, with Stone Curb—Warren Brothers Company, \$22,169.40.

Same with Combination Curb and Gutter—Warren Brothers Company, \$21,056.

Bitulithic, with Stone Curb—Warren Brothers Company, \$22,169.40; Central City Paving Company, \$22,532.28; F. J. Baker, \$23,147.60; Warner-Quinlan Asphalt Paving Company, \$23,265.70.

Same with Combination Curb and Gutter—Warren Brothers Company, \$21,056; Central City Paving Company, \$21,713.98; F. J. Baker, \$22,606; Warner-Quinlan Asphalt Paving Company, \$22,330.20.

Block, with Stone Curb—Central City Paving Company, \$23,618.68; John W. Bustin, \$22,751.60; Warner-Quinlan Asphalt Paving Company, \$24,641.70; F. J. Baker, \$24,156.40; Nicholas Marnell (Corning block), \$24,860.10; Nick Marnell (Syracuse block), \$25,248.10.

Same with Combination Curb and Gutter—John W. Bustin, \$22,546.60; Central City Paving Company, \$22,735.98; F. J. Baker, \$23,555; Warner-Quinlan Asphalt Paving Company, \$23,500.20; Nick Marnell (Corning block), \$25,323.90; Nick Marnell (Syracuse block), \$25,688.90.

Wood Block, with Stone Curb—John Young, \$27,155.95.

Same with Combination Curb and Gutter—John Young, \$26,398.95.

Macadam, with Stone Curb—John Young, \$15,762.35; Central City Paving Company, \$16,246.68; Warner-Quinlan Asphalt Paving Company, \$17,368.10.

Same with Combination Curb and Gutter—John Young, \$14,645.95; P. R. Kiley, \$15,487.40; Central City Paving Company, \$15,800.98; Warner-Quinlan Asphalt Paving Company, \$17,282.20.

Paving West Marcellus street, from Geddes street to Harbor Brook, for which the City Engineer's estimate was \$4,470; proposals were asked for combination curb and gutter only:

Trinidad Asphalt—F. J. Baker, \$4,009.52, Warner-Quinlan Asphalt Paving Company, \$4,031.37.

Sandstone—John W. Bustin, \$5,377.70; F. J. Baker, \$5,403.32; Samuel Bonn, \$5,530.78.

Block—John W. Bustin, \$3,923.30; F. J. Baker, \$4,033.76; Samuel Bonn, \$4,040.02; Warner-Quinlan Asphalt Paving Company, \$4,164.69; Central City Paving Company, \$4,219.70; Nick Marnell, \$4,307.25; Long & Harvey, \$5,559.74.

Wood Block—John Young, \$4,791.90.

Macadam—John Young, \$3,022.38.

Resurfacing South State street for five blocks, from East Kennedy street to East Colvin street; four grades of materials figured in the estimates, as follows:

Trinidad Asphalt—Warner-Quinlan Asphalt Paving Company, \$10,040.19; F. J. Baker, \$10,851.40.

Trinidad Lake Asphalt—Central City Paving Company, \$10,539.64.

Acme California Asphalt—Warren Brothers Company, \$12,710.88.

Bitulithic—Warren Brothers Company, \$13,838.28.

The Salt City Paving Company will get the first sidewalk contract of the season on a bid of \$109.20 for the construction of a walk on the east side of Green street, from Hawley avenue to Lodi street; Albert Gaffey offered a bid of \$110.25 and John Barr bid \$120.75; the per square foot rate of the low bid was 10 4-10 cents, about 1 cent higher than the average that prevailed when the season closed last year.

**Columbus, O.**—Following is a list of bids received by State Highway Commissioner J. C. Wonders, at Akron, O., January 21, 1909, on the Summit County State Highway "B," known as the Copely Road (estimated cost of construction, \$8,670.56): D. A. Phillips, Ashland, O., \$8,100; John McCausland, Cuyahoga Falls, \$8,850; The Bluffton Stone Company, Lima, \$7,623.70; Waldeck & Ready, Warren, \$8,009.38; John O'Neal, Akron, \*\$6,500; McAlonan Bros., Akron, \$8,112; Doll & Sinn, Akron, \$8,550; E. M. Shaffrey, Akron, \$8,828.70; A. R. Taylor, Findley, \$8,500; Wildes & Davidson, Akron, \$8,574.60.

John O'Neal, claiming a mistake in making up his bid, was permitted to withdraw same. Contract was awarded to the Bluffton Stone Company, of Lima, O., theirs being considered the lowest responsible bid.

**Lisbon, O.**—The County Commissioners, January 19, opened new bids for the grading of the Jethro Hollow road, in Liverpool township, as follows: George D. Smith & Brother, Salem highway excavation, 33 cents; rock excavation, 61 cents; John R. Armstrong, Lisbon, 30 cents for highway and 60 cents for rock; Rinehart Brothers, East Liverpool, 29 cents for highway and \$1.25 for rock; Davis-Duffy Company, East Liverpool, 22 cents for highway and \$1 for rock; Allison & Happell, East Liverpool, 30 cents for highway and 49 cents for rock; John McLaughlin, East Liverpool, 27½ cents for highway and 60 cents for rock; W. D. Hammond, Jacobsonberry, O., 26½ cents for highway and 41½ cents for rock; W. N. Wright, Lisbon, 35 cents for highway and 75 cents for rock; George B. Patterson, Wellsville, 28 cents for highway and 48 cents for rock.

**Youngstown, O.**—James McCarron was awarded the contract for paving West avenue between Marshall street and West Rayen avenue by the Board of Public Service, January 8, at \$13,306.—F. M. Lillie, City Engineer.

**Clearfield, Pa.**—Rinehart Brothers, of E. Liverpool, O., secured the contract to grade and pave about one mile of State highway at Clearfield, at \$15,000.

**Chattanooga, Tenn.**—The city and the Chattanooga Railways Company will work in unison for the improvement of Eighth street from Cherry street to Georgia avenue; contract for paving has been let by the city to the Southern Construction Company and the railways company will rebuild its tracks.

**Dallas, Tex.**—For the laying of the sidewalks and the curbing and gutters of concrete about the lately acquired triangle in Oak Cliff, contract has been awarded to Klein Brothers. They bid 12 cents a running foot for the sidewalk and 58 cents for the combined curb and gutter work.

**Everett, Wash.**—Bids have been opened by the Board of Public Works for the South Park improvement project, and Ellison & Thorsvig, the low bidders, have been awarded the contract, at \$13,810.

**Olympia, Wash.**—Bids were opened by the State Highway Board January 12 for the construction of State aid road No. 27, known as the North Trunk road, in King County, and were as follows: L. H. Goerig, awarded contract, \$9,895; G. W. Wilson, \$10,450; Mills Brothers, \$11,495; John Kalberg, \$11,850; Northwest Construction Company, \$11,900; George A. Bandaret, \$12,625; Josiah Jones & Son, \$12,990; J. Mitchell, \$13,970.

**Tacoma, Wash.**—The contract for grading Sixth avenue through Fletcher Heights addition has been awarded to A. Mathewson by the Commissioner of Public Works, at \$10,219.

**Benwood, W. Va.**—The Committee on Streets, Alleys and Grades of City Council recommended William Koehnline of Bridgeport, O., for the paving contract of 3,000 square yards, with Empire Standard Company's brick, of Empire, O., but a flaw was found and Council rejected all bids and ordered a readvertisement.

## SEWERAGE

**Graymont, Ala.**—City will vote, Feb. 15, on \$10,000 bond issue for extension of sanitary sewer system.

**Mobile, Ala.**—Chief Engineer Wright Smith, of Board of Public Works, has been instructed to prepare plans for sewers, 10 to 30-inch diameter, in the following streets: Broad to Claiborne, Church to St. Francis, Jackson to Royal, and Madison to Church; total cost, including paving, \$300,000.

**Phoenix, Ariz.**—At the request of Mayor Coggins, President Foss, of the Board of

Trade, appointed a special committee to investigate the needs of the city in respect of a sewer system, gather all the information possible and make such report as it sees fit. B. A. Fowler was made Chairman, the other members being Roy Goodrich, secretary; Dwight B. Heard, P. T. Hurley, Joseph Thalheimer, H. J. McCullough and E. J. Bennett.

**Los Angeles, Cal.**—The Board of Public Works has authorized the City Engineer to prepare an estimate of the cost of a storm sewer on Pico and other streets to relieve conditions in the western part of city.

**Mountain View, Cal.**—Citizens have voted \$40,000 bonds for the construction of a sewerage system.

**San Jose, Cal.**—Council has instructed City Engineer to prepare plans and specifications for the construction of a brick or concrete sewer to replace the present box outfall sewer; \$50,000 is available.

**Washington, D. C.**—Engineer Commissioner Cosby has ordered that water mains be laid and service sewers constructed: Fifty feet of 8-inch water main in Nineteenth street, northwest; sewer in Benning road; sewer in Queen street; sewers in Georgia avenue, Lamont, Sixth, and Keever streets; sewer in E street, northeast; sewer in Tennessee avenue, northeast, between B and C streets; sewer in Decatur street and in Iowa avenue.

**Clearwater, Fla.**—Bids will be received February 1 on \$40,000 bonds; bids will be received about March 1 for the construction of sewerage system and water works from plans of J. A. Holmboe, of Louisville, Ky.—Leroy Brandon, Mayor.

**Atlanta, Ga.**—Citizens will vote March 15 on \$1,000,000 bond issue for sewer construction.—Robert Maddox, Mayor.

**Freepoort, Ill.**—City Engineer Graham has estimated cost of constructing concrete sewers in Pine, American, Chestnut and Benton streets at \$6,300.

**Lebanon, Ind.**—Council has authorized the City Engineer to prepare plans for a sanitary sewer for the southern part of city; cost, \$75,000.

**Washington, Ind.**—A committee has been appointed by the Council to secure Engineer to prepare map for a general sewer system; cost, \$125,000.—Elisha Hyatt.

**Davenport, Ia.**—Council has passed resolutions for the construction of sewers in Fifteenth street and in the alley between Second and Third streets; also a storm water sewer on Rockingham road.—Hugh Mueller, City Clerk.

**Atchison, Kan.**—Council has passed a resolution looking to the construction of sewers in District N, to consist of approximately five miles of sewers, ranging from 8 to 36-inch diameter.—Chas. A. Hawk, City Clerk; Fred Giddings, City Engineer.

**Baltimore, Md.**—The Sewerage Commission has approved specifications for tanks at the disposal plant of Back River; cost, about \$10,000. Calvin W. Hendrick, Chief Engineer, Sewerage Commission, will prepare specifications for the construction of the first series of lateral sewers to be built in connection with the sewerage system; the first laterals will cost about \$100,000; bids will be received shortly.

**Baltimore, Md.**—The Board of Public Improvements is considering an ordinance providing for construction of storm water drain on Eastern avenue, from Lakewood avenue to present eastern city limits; estimated cost, \$15,000; work may be done by department of B. T. Fendall, City Engineer.

**Attleboro, Mass.**—The special sewer committee in charge of investigating cost of constructing a sewerage system has recommended filter beds for sewage disposal.

**St. Paul, Minn.**—City Engineer L. W. Rundlett has sent a preliminary order to the Board of Public Works providing for the construction of the Prior avenue sewer system; length, 15,000 feet; cost, about \$50,000.

**St. Paul, Minn.**—Council is considering the following work, which includes a sewer on Atwater street, cost about \$21,000; the Otto avenue sewer, cost about \$20,000; the Prior avenue system, cost \$22,000; the Randolph street sewer, cost approximately \$6,000; the Hamline-Jefferson system, cost approximately \$50,000; the Grove street sewer, cost \$5,000; Trout Brook extension, \$8,000; the Albemarle-Front street system, cost \$5,000, and the Arch street system, cost \$4,000.

**Cameron, Mo.**—City is considering the installation of the sewer system.

**Kansas City, Mo.**—The Kansas City Terminal Company will build the O. K. Creek sewer from its terminus at Twenty-first and Walnut streets through to Turkey Creek without expense to the city; cost, about \$300,000.—H. L. Harmon, President.

**Boonton, N. J.**—Mayor C. J. Kapp has recommended a sewerage system, municipal ownership of water works, the improving of streets and street lighting.

**Carlstadt, N. J.**—The citizens have voted January 13 an issue of \$80,000 bonds for the construction of a sewerage system.

**Jersey City, N. J.**—The Street and Water Board is face to face with the sewage disposal problem as the result of a notice from the State Board of Health to the effect that no more sewers must be built to discharge crude sewage into New Jersey rivers; heretofore Jersey City has been building sewers with no thought of treating the sewage so as to render it less offensive.

**Millville, N. J.**—Council is considering plans looking to the building of a sewage disposal plant to cost about \$22,000.

**Trenton, N. J.**—City Engineer Abram Swan, Jr., has sent a report to Council upon a revised plan of sewers in the Sixth and Eleventh Wards for a better disposal of storm water.

**Trenton, N. J.**—Council has ordered sewers constructed in Milcrest avenue, Franklin and Adeline streets.—H. B. Salter, City Clerk.

**Verona, N. J.**—Mayor Robert Palm has recommended the installation of a sewerage system, the grading of streets, the erection of a town hall and better fire protection.

**Albuquerque, N. M.**—Citizens will soon vote on \$300,000 bond issue to provide for a sewer system.

**Buffalo, N. Y.**—Commissioner of Public Works Francis G. Ward will ask Council for an appropriation of \$150,000 to lower the Bird avenue sewer as required by the Government improvement work being done in Black Rock.

**Ithaca, N. Y.**—Four carloads of 6-inch tile have been distributed along various streets of Bryant Park, preparatory to the installing of the sewerage system.

**Lockport, N. Y.**—City is confronted with proposition of disposal of city sewage; proposed sewage disposal plant will cost \$100,000.

**Newburgh, N. Y.**—Property owners on Dubois street and Carpenter avenue have asked for construction of sewers in their streets.

**New York, N. Y.**—Plans of a comprehensive scheme of sewage disposal for New York City that will cost about \$32,000,000 to install and equip have been submitted to Mayor McClellan by Edward Hatch, Jr., J. Pierpont Morgan and the other members of the committee from the Merchants' Association appointed to consider the subject; committee proposes two plans, one for cross streets and the other for marginal streets, providing for placing the disposal works or tanks for the cross streets in and beneath the streets, and those for the marginal streets extending from the street line to the pier sheds, with the tanks beneath the surface of an open plaza; both plants provide a screening and sedimentation process that will remove at least 65 per cent. of the solid material in suspension; screenings will be removed by laborers and incinerated and the remainder sent by steamer to sea to be dumped.

**Rochester, N. Y.**—Bids will soon be called for by the Board of Contract and Supply for construction of a sewer on Lyell avenue, from Orchard street to present sewer east of the Erie canal; City Engineer has prepared plans.

**Schenectady, N. Y.**—Mayor Horace S. Van Voast has suggested the acquisition by the city of the land owned by the State within the city limits and used for canal purposes, to be transformed into a thoroughfare 100 feet in width, with a trunk sewer leading to the disposal plant in the bed; it is proposed to erect a plant along the Mohawk River, in the direction of the Aqueduct.

**Syracuse, N. Y.**—City Engineer H. C. Allen is preparing plans for the following sewer work: 12-inch pipe sewer in Belden avenue; 15-inch tile pipe sewer in Elm street, and a 15-inch tile pipe sewer in Robinson street, 12-inch tile pipe sewer in Eldorado street; and a 12-inch tile pipe sewer in Herkimer street.

**Troy, N. Y.**—City is considering the construction of a sewage disposal plant, cost not to exceed \$10,000; a trunk sewer may be run along the Wynantskill to the lowest point in the locality, where the disposal plant could be located.—Commissioner Public Works Shields.

**Utica, N. Y.**—The storm water sewer law provides that \$25,000 shall be expended each year until the system is completed and the City Engineer's Department is now engaged in preparing plans for a storm water sewer to be constructed in Auburn avenue and the street next south thereof; sewer will be about 5,000 feet in length.

**Cleveland, O.**—Resolutions authorizing the Board of Public Service to advertise for bids on contracts for paving ten miles of city street will soon be introduced in Council.

**Cleveland, O.**—City officials are considering a bond issue of \$500,000 for construction of sewers.

**Dayton, O.**—The Walnut Hills Improvement Association is urging the construction of sanitary sewers in the district west of Wayne avenue.

**Dayton, O.**—F. J. Cellarius, City Eng-

neer, will prepare plans for about six miles of sanitary sewer, 8 to 12-inch, in District 4.

**Hamilton, O.**—Council has passed an ordinance instructing the City Engineer to prepare plans and estimates for a storm sewer on Campbell avenue and a sanitary sewer on North E street.

**Hamilton, O.**—Council has received resolutions declaring it necessary to improve North Eleventh street by construction of a sanitary sewer.

**Lockland, O.**—Plans are being considered for the construction of a sewage disposal plant.

**Lorain, O.**—The plans for the new sewer district of East Erie avenue have been completed by the Engineering Department and will soon be submitted to the State Board of Health for its approval; plans for the new district for East Erie will be completed in several weeks; sewer districts are being established in anticipation of paving.

**Niles, O.**—Niles men who just attended the State Board of Health meeting in Columbus will ask for the temporary right for that city to empty a new sewer into the Mahoning River while plans are being prepared for a disposal plant.

**Norwood, O.**—City is considering plans for the construction of a sewage disposal plant.

**Wellsville, O.**—City Engineer T. W. White and his assistants in the Engineering Department are making headway with the preparation of plans for a sewerage system that shall conform to rules of the State Board of Health, which are expected to call for considerable change in the existing arrangement in the near future.

**Bartlesville, Okla.**—F. C. Harnett, City Clerk, will receive bids about April 1 for the construction of 9,000 feet of 8 and 10-inch vitrified pipe sewers.

**Bartlesville, Okla.**—City will expend about \$40,000 in the construction of sewers.—W. H. Aspinwall, of Bartlesville, Engineer; F. B. Hornett, City Clerk.

**Hartshorne, Okla.**—Citizens have voted a \$25,000 bond issue for sewer construction.—W. E. Robbins, Secretary.

**Wagoner, Okla.**—Citizens have voted \$40,000 bonds for the construction of a sewerage system.

**Bradford, Pa.**—City Engineer A. F. Bannon has been authorized to go to Harrisburg to confer with the officials of the State Board of Health on the question of sewage disposal and to visit Reading and Altoona to secure information that will be useful when this city will establish a sewage disposal plant.

**Erie, Pa.**—Council has adopted resolutions for a sewer in Plum street between Third and Fourth.

**Erie, Pa.**—B. E. Briggs, City Engineer, is preparing plans for the new intercepting sewer system.

**Harrisburg, Pa.**—Dr. Samuel G. Dixon, State Health Commissioner, has sent an order to Council for the reconstruction and improvement of the sewer system to the extent of at least a million and a half dollars.

**Houtzdale, Pa.**—Council is considering the construction of a sewerage system.

**Indiana, Pa.**—City Engineer R. M. Mullen is estimating the cost of the new sewage disposal plant the borough of Indiana must erect this coming summer; Council will authorize a \$50,000 bond issue to pay for the sewage plant and the freemen will vote upon it at the February election.

**Johnstown, Pa.**—Mayor Alex Wilson has urged that Council provide funds to secure expert advice and to prepare plans for sewer improvements and extensions.

**Philadelphia, Pa.**—Council has passed an ordinance to authorize the construction of sewers in Almond, Brill, Devereaux, Dittman, Dorset, Graham, Gillingham, Hegerman, I, Indiana, Judson, Lawrence, Mascher, Norwood, Ninth, Orchard, Ringgold, Ross, Springer, Silverwood, Taylor and Watts streets, Elmwood, Hunting Park, Parker, Springfield, Torresdale and Walton avenues; also sewers in Jackson and Nineteenth streets, Snyder and Olney avenues and Cheltenham and Willow Grove turnpike.—J. E. Reyburn, Mayor.

**Pittsburg, Pa.**—City has ordered the construction of a sewer in Washington avenue with a branch sewer on Industry and Laverne streets and Boggston avenue.—Robert Clark, Clerk Common Council.

**Pittsburg, Pa.**—The State Board of Health has ordered the city to devise some means for the disposal of sewerage at a cost from \$15,000,000 to \$20,000,000; Director Shepherd has included in his appropriation an estimate of \$39,498 to be expended in making preliminary surveys and plans for his proposed system.

**Portage, Pa.**—The Borough Council has passed finally an ordinance, referring to the voters the question whether or not this town shall issue bonds in the sum of \$25,000 for the purpose of installing a first-class sewer system; detailed plans for

the entire system, together with a description of a proposed treating plant, have already been submitted to the State Department of Health and received the approval of that body; plans were prepared by H. E. Hyde, an Engineer.

**Sharon, Pa.**—Council has instructed City Engineer Nicholls to ascertain the estimated cost of constructing a sewage disposal plant.

**Charleston, S. C.**—City Engineer J. H. Dingle is calling for bids for the erection of a 450-gallon per minute vertical centrifugal pump, with electric motor for the sewerage pumping station at Gibbes and Legare streets; use of the compressed air system is being abandoned and electrical pumps substituted.

**Memphis, Tenn.**—The City Club has endorsed proposed \$1,000,000 bond issue; \$200,000 to be expended for the construction of a main sewer across the southern part of the city and \$800,000 for streets, bridges and culverts.

**Austin, Tex.**—The Comptroller's Department has registered an issue of \$15,000 city of Mineral Wells 5 per cent. sewer bonds, maturing in 40 years.

**Dallas, Tex.**—The City Commissioners have ordered a 6-inch sanitary sewer constructed in Zang's Boulevard between Page and Brooklyn streets; length, 330 feet.

**Denton, Tex.**—Backed by Mayor Hay, the Park Board has started out to secure adequate sewer service for the Fair Park and from that place for a large section of the southeastern part of the city.

**Denton, Tex.**—The State Attorney-General has approved \$12,500 worth of 5 per cent. sewer bonds.

**Fort Worth, Tex.**—John Mead, a civil engineer of 2317 Lincoln avenue, North Fort Worth, will prepare the plans and specifications for the new sewer system; contracts will soon be let.

**Longview, Tex.**—The Longview Sanitary Co. will purchase sewer pipe, sand, gravel, brick, manhole castings, etc., for sewer construction.

**Norfolk, Va.**—The Board of Control will ask for an appropriation of \$44,000 for the drainage of the section of unimproved property bounded by the Norfolk and Western right-of-way, Armistead bridge road, Jamestown boulevard and Colley avenue; the Controllers have also recommended the construction of a concrete drain, running from Armistead bridge road through Stockley Gardens, emptying into The Hague—a distance of about one mile.

**Tacoma, Wash.**—Council has adopted resolutions for sewers in two districts and passed resolutions for sewers in two others.

**Hamilton, Ont., Can.**—Citizens have voted an issue of \$65,000 bonds for extending the Catherine street and Ferguson avenue sewers through the revetment wall and completing the new annex sewer system.—E. G. Barrow, City Engineer.

**Toronto, Ont., Can.**—C. H. Rush, City Engineer, has recommended that the city engage J. D. Watson, of Birmingham, England, and Rudolph Hering, of New York, N. Y., as experts for the proposed septic tanks for the disposal of sewage.

#### BIDS RECEIVED AND CONTRACTS AWARDED

**Los Angeles, Cal.**—The following are the lowest bids opened January 4 by the Board of Public Works for sewers: For a sewer on Washington and other streets, Joseph Chutuck, \$8,888; and on Carondelet and other streets, A. B. Calkins & Co., \$10,390.

**Pasadena, Cal.**—The following bids were opened January 12 by Council:

Sewers on El Molino avenue, Madison avenue, Oakland avenue, Miles street—Chamberlain & Williamson, \$3,944; Geo. A. Rogers, 4,625; E. L. Plantier, \$4,250; J. M. Eads, \$4,610.

Sewers on El Molino avenue, Madison avenue, Buckeye street, Galena avenue, Mountain street, Herbert street, Thompson drive and Jackson street—A. Holloway, \$5,166; Chamberlain & Williamson, \$5,693; Geo. F. Thompson, \$5,735; E. L. Plantier, \$5,920; J. M. Eads, \$6,200; Geo. A. Rogers, \$6,790.

Sewers on Meredith avenue, Bonnie avenue, Modena avenue and other avenues—A. Holloway, \$4,277; Chamberlain & Williamson, \$4,818; E. L. Plantier, \$5,040; J. M. Eads, \$5,280; Geo. A. Rogers, \$6,900.

Steel tie conduit, Fair Oaks and Glenarm street—Thompson & Dantaville, \$1,987; Smith & Degryse, \$2,022; A. Holloway, \$2,048; A. W. McDowell, \$2,362.

**Redlands, Cal.**—The lowest bid opened December 30 by the Board of City Trustees for the construction of the storm water ditch on Garden street was that of Ernest Frenzall, at \$23,291.

**Naperville, Ill.**—Bids for laying the pavement, curbing and drainage sewer in the east end of Naperville were opened by the Board of Local Improvements January 18; the bids ranged from \$77,000 to \$102,000,

and were twenty-three in number. The lowest bid, \$77,000, was made by Hayes & Son, of Dunkirk, Ind., but the contract will not be let for several days, as the Board may decide to use a binder of asphalt instead of finished macadam, as called for in the specifications; the Engineer's estimate was \$110,000; the improvement consists of 56,000 square yards of paving and curbing laid east of Washington street and five or six miles of drainage sewer. There is already a sanitary sewer. The drainage sewer will have two outlets, one into the DuPage River and the other into the creek which flows through the Stenger property.

**Indianapolis, Ind.**—After numerous delays the Brightwood sewer, which will cost approximately \$165,000, is to be built; Schauer & Roesinger, the contractors, filed the necessary bond January 18; George S. Schauer, of Schauer & Roesinger, said that a company to be known as the Indiana Construction Company would be organized at once to finance the work. Other members of the company will be William Roesinger, P. P. Parnell and Peter Van Briggle; Parnell and Van Briggle live in Tipton. The sewer will start in Thirtieth street, near Bellefontaine street, and will proceed through Hillside avenue and other streets to Brightwood avenue; it is estimated that about 18 months will be required in its construction.

The contract was first awarded to John Jenkins, a colored contractor, who later said he had made an error in bidding, and was unable to furnish sufficient bond or find any one to finance the work. His certified check of \$4,750 was forfeited by the Board and new bids asked. The present contractors were awarded the work at \$9.97 a lineal foot. The sewer will range from an 18-inch pipe in lateral branches to the main sewer, which will be 10 feet in diameter in some places; the sewer will be 16,530 feet long and is one of the largest contracts of its kind let for several months.

**Des Moines, Ia.**—James Horrabin, at \$1.79 per foot, and the Turner Improvement Company, at \$1.89 per foot, are the only bidders for constructing the West Seventh street sewer.

**Detroit, Mich.**—Contracts have been awarded as follows by the Department of Public Works for the construction of sewers: Gratiot avenue sewer to James Hanley; Waterman avenue sewer to F. Porath & Son.—J. J. Haarer, Commissioner of Public Works.

**Springfield, Mo.**—Contract for construction of district sewers in Sewer District No. 12, of Section 3, about 12,607 feet of 10-inch and 8-inch pipe, has been awarded to J. Spandri, city.

**Jersey City, N. J.**—Three of five bidders at the meeting of the Street and Water Board of Jersey City offered to construct a sewer in Boyd avenue at the same percentage of the standard, 79 per cent.; they were: O'Reilly Brothers, Bernard Gannon and Charles O'Neill; the Board was unable to determine to whom to award the contract, as the members considered all three bidders capable of good work, and drawing of lots was suggested and Richard O'Reilly got the lucky slip and was awarded the contract.

**Perth Amboy, N. J.**—Hardiman & Dredricksen, the lowest bidders, were awarded the contract for building the Kearny avenue sewer by the Board of Aldermen; seven bids were opened.

**Long Island City, L. I., N. Y.**—P. F. Brennan, 244 Mt. Hope avenue, Bronx Borough, New York City, secured the contract for constructing sewer in Freeman avenue, from East River to Van Alst avenue, First Ward, for \$20,182.

**Newburgh, N. Y.**—The Street Committee of Council opened bids January 19 for laying a 12-inch sewer on Elm street and City Terrace, and P. & J. O'Rourke were the low bidders, their bid being 94 cents a lineal foot for earth and \$1.45 per cubic yard for rock; Mr. Spino, a Fishkill contractor, also bid 94 cents for the ordinary work, but wanted \$2.50 per cubic yard for rock; W. J. Murphy bid \$1.44 per lineal foot, with \$1 extra for rock, and J. H. Murphy's bid was for \$1.19 per lineal foot and \$1.44 extra for rock; recommendation was made to Council to award the contract to P. & J. O'Rourke.

**Rye, N. Y.**—The Globe Foundry Company, of Port Chester, has been awarded the contract to furnish all the iron manhole frames and covers needed in the construction of the sewer system; there will be about 500 required.

**Syracuse, N. Y.**—Frank S. Sposito was the low bidder for the construction of the big Elmwood sewer system, estimated to cost \$24,500; his bid of \$17,086.80 being the lowest of ten canvassed, and a contract will probably be awarded him; the other bidders submitted figures as follows: Sullivan & Davin, \$17,955; Albert Gaffey, \$17,987.90; Samuel Bonn, \$18,827.90; John Young, \$19,719; C. T. Hookway, \$20,010.50; P. R. Kiley, \$20,765.50; John W. Bustin, \$21,257.30; Nick Marnell, \$21,952.50; James

Swift, \$22,619.50. Out of ten bidders who competed for a contract to build a 12-inch pipe sewer in Shuart avenue from Wilson street to Teall avenue, for which an estimate of \$1,550 had been made, Albert Gaffey was low at \$914.50, and he will probably be allotted the work; his competitors and their bids were as follows: Charles Bonn, \$931; E. G. Dakin, \$969; Anthony Sposato, \$990.75; Alexander Barr, \$1,038.75; Mary E. Gaffey, \$1,067.50; Frank S. Sposato, \$1,132.50; Sullivan & Davin, \$1,257.50; C. T. Hookway, \$1,301.50; James Swift, \$1,305.50.

**Hobart, Okla.**—Hobart has let a contract to T. C. Brooks & Son, of Detroit, Mich., for the construction of \$25,000 worth of additional sanitary sewers in Hill addition; the work is to begin at once and completed as quickly as possible.

**Muskogee, Okla.**—Council has awarded the contracts for the sewers to the Heman Construction Company for District No. 1, of the ninth street district, at \$68,351.09, and the remaining two districts to F. B. McCormack on a bid of \$117,309.78. The Heman Company will use brick in the construction of the sewers in their district and it was stipulated that the brick be of home manufacture. Alderman Falwell urged that, as there seemed to be a joker in some of the contracts, the city allow the work to be done in three different methods in order to find out where the joker lay, and introduced a motion providing that District No. 1 be awarded P. J. McNerny on an 8 per cent. basis; No. 2 to be constructed by the city and No. 3 to be awarded to F. B. McCormack. G. D. Rogers, attorney for Rooney & Nash, addressed the Council and brought out several points which he believed made the bid of his clients the lowest and best. The vote on the motion of Falwell to divide the contracts was a deadlock and on the vote of the Mayor was lost. A motion was then made that the entire work be awarded to the low bidder, F. B. McCormack. Clark Tisdell, on behalf of the Heman Construction Company, said his client was low bidder on sewers and he asked for the contract for District No. 1, as the cost was only \$3,500 higher than the concrete, and he argued that the brick would all be bought in Muskogee. J. H. Huckleberry, for P. J. McNerny, declared that the bids should not be awarded until the city had secured an outlet for the sewer, for if Council should go ahead with the construction of the sewers under the plan proposed they would probably find themselves at the completion of the work with a \$200,000 system and no place to put the sewage. On motion of Alderman Alley the contract in District No. 1 was awarded to the Heman Construction Company and the rest of the work to the McCormack Company, a deadlock being broken by Mayor Martin.

Alleging that the contracts were not awarded to the lowest bidder and irregularity in the method of awarding, George Dick Roger, attorney for Rooney & Nash, sewer and paving contractors, January 15 secured from Judge Jackson a writ of temporary injunction preventing the Council awarding a storm sewer contract to the McCormick Construction Company; Rooney & Nash in the bidding were unsuccessful.

**Danville, Pa.**—The Pitt Construction Company, of Pittsburgh, has been awarded contract for sewage disposal plant at State Hospital for the Insane, at \$52,547.

**Providence, R. I.**—Waldo Bros., 102 Milk street, Boston, Mass., have been awarded the contract by the city for about 43,375 feet of 6, 8, 12 and 15-inch sewer pipe, with branches, etc., at \$9,330.

**Galveston, Tex.**—The Board of City Commissioners opened bids January 12 for the extension of the sewer in Tremont street, from a point in the alley between Avenues P and P½ to Avenue Q, being that section across the grade raising canal site which has been refilled to grade. Three bids were submitted, and Heffron & Falligant were the lowest bidders. The bids were referred to City Engineer Dickey for tabulation and report. The specifications called for eight items of piping, lumber, catch basins, etc., as follows:

1—496 feet of 18-inch pipe; 2—360 feet of 8-inch pipe; 3—836 feet of 2x10-inch by 16 feet running board; 4—12-inch Y branch, T corner; 5—For the construction of six-corner catch basins, so much each; 6—For the construction of 6 side catchbasins, so much each; 7—For the construction of one 18-inch manhole; 8—For the construction of one 8-inch manhole.

The bids on the respective items in order were as follows: Heffron & Falligant, \$123.50, 55 cents, 4½ cents, \$1.68, \$30, \$17.50, \$32, \$29; Kelso & Vautrin, \$1.67, 95 cents, 5 cents, \$1.50, \$40, \$35, \$55, \$50; Horton & Horton, \$1.25, 60 cents, 4 cents, \$3, \$30, \$25, \$18, \$18.

**Longview, Tex.**—The Longview Sanitary Company, recently reported incorporated,

etc., will begin construction of sewer system for city about February 1.—James M. Walker, President and General Manager; Thomas McFyeire, Vice-President; E. M. Thomas, Secretary-Treasurer.

**Salt Lake City, Utah.**—Zerbe & Walker have been awarded contract for Sewer Extension No. 219 by the Board of Public Works, for \$935.—Louis C. Kelsey, City Engineer.

Following is the extract of bids:

Excavating and back filling, 569, 09 cubic yards, Zerbe & Walker, for \$381.80; J. D. Hanley, \$1.05, \$597.54; Davis & Hauser, \$1.20, \$682.91. Furnishing and laying 660.5 feet 8 inches vitrified pipe, including four Y's, \$363.20; 30 cents, \$198.15; 40 cents, \$264.20. Manholes, each, \$65; \$50; \$49.91. For constructing flushtanks, each, \$125; \$125; \$117. Totals, Zerbe & Walker, \$935; J. D. Hanley, \$970.69; Davis & Hauser, \$1,114.02.

Zerbe & Walker were also awarded contract for pipe line in the Nineteenth Ward irrigation ditch, for \$440.75.

Following is the abstract of bids: Excavating and back filling, 206.52 cubic yards, Zerbe & Walker, \$198.35; J. D. Hanley, \$1.25, \$258.15; Davis & Hauser, \$1.50, \$309.78. Furnishing and laying 15-inch vitrified pipe, 217 feet, \$187.40; 65 cents, \$141.05; 80 cents, \$173.60. Vitrified pipe to be taken up and relaid, 25 linear feet, \$10; 30 cents, \$7.50; 50 cents, \$12.50. Manholes, \$45; \$50; \$35. Totals, Zerbe & Walker, \$440.75; J. D. Hanley, \$456.70; Davis and Hauser, \$530.88.

## WATER SUPPLY

**Auburn, Ala.**—Citizens have voted an issue of \$12,000 bonds for extension of water works.

**Jacksonville, Ala.**—City is considering plans for the extension and improvement in the water works system.

**Phoenix, Ariz.**—Council has directed the Water Superintendent to advertise bids at once for another pump; the kind of pump has not been decided on.

**Eldorado, Ark.**—The Eldorado Light & Water Company will let contract about the first of next month for laying about four miles 4-inch to 10-inch mains.—J. P. Holmes, President.

**Ft. Smith, Ark.**—Fire Chief Trowbridge has recommended the installing of 86 more plugs on present mains, also extension of mains to different sections with 30 more fireplugs.

**Redwood, Cal.**—The Town Board has sold the \$20,000 bonds recently voted for the improvement and extension of the water system to N. W. Halsey & Co., of San Francisco.

**San Diego, Cal.**—City Engineer A. G. Crowell is preparing plans and specifications for the reconstruction of the lower Point Lomas reservoir, located a short distance north of the Theosophist Homestead.

**San Francisco, Cal.**—City will be in the market this week for 40,000 tons of cast-iron pipe.

**Santa Clara, Cal.**—The C. D. Sykes lot on the corner of Main and Santa Clara streets has been purchased by the town and the water tower will be placed on the property.

**Santa Cruz, Cal.**—City Engineer Williams has estimated cost of pipe for proposed water works extensions at \$150,676.

**Washington, D. C.**—The District Commissioners have rejected all bids for auxiliary water system and fire protection for the Home for the Aged as being excessive.

**Key West, Fla.**—City will soon ask bids for drilling wells.

**Palmetto, Fla.**—City is considering plans for the installation of a water works system.

**Atlanta, Ga.**—The Water Board is urging an appropriation of \$1,000 for a Venturi meter on the new pumping engine.

**Roxton, Ga.**—The J. B. McCrary & Co., Engineers, Atlanta, Ga., have submitted to city authorities a bid for maps, plans and specifications for water works system; bond election may be called.

**Aurora, Ill.**—Citizens of Pigeon Hill are planning a sewer system with large mains which will run straight to the river.

**Beecher, Ill.**—The Business Men's Association has appointed a committee to secure estimates for a water works system.

**Macomb, Ill.**—I. H. Jewell of Chicago, Ill., is estimating cost of installing a water plant at Crooked Creek.

**Moline, Ill.**—City will ask bids the last of this month for water main extension in the Sixth Ward, including about 11,200 feet of 6-inch cast-iron water pipe, 25 hydrants, 17 valves, etc.—Clark G. Anderson, City Engineer.

**Ottawa, Ill.**—The Water Committee composed of Frank Sanders, Walter Palmer and M. Dinneen, urge the immediate purchase of an air compressor and air receiver; cost, \$1,597; improvements made to the pumping station; cost \$500; and miscellaneous work, cost \$358, in order to increase

the water supply; the Ingersoll-Rand Company has put in a bid of \$1,957.

**Rock Island, Ill.**—The Board of Aldermen have voted in favor of a 6,000,000-gallon filtration plant with the understanding that the vote was not binding; Board is also considering the installation of an 8-inch water main service in First avenue.—Jas. Cavanaugh, Superintendent.

**White Hall, Ill.**—Council has granted a petition asking a \$4,500 appropriation for an additional water supply and auxiliary reservoir.

**Hammond, Ind.**—Bids will be received for laying four lengths of 48-inch iron pipe and twelve lengths of 36-inch pipe.—Otto Duekne, City Clerk.

**Davenport, Ia.**—Council has instructed the City Clerk to ask for plans, specifications and bids for a new filtering plant to be located at the foot of Twenty-fourth street, and to be large enough to provide for 12,000 gallons in settling basins for twenty-four hours, and not less than 6,000,-000 gallons for twenty-four hours; also to be large enough to add more filter beds when needed; mechanical gravity system is preferred; cost, \$70,000.

**Georgetown, Ky.**—Mr. Gebhart, an expert water works engineer of the East, who was brought here by President Levering, of the Indian Refining Company, has made a report, in which he says a filter for the Georgetown water supply is an absolute necessity; committee of which Mr. John R. Downing is the head has been appointed.

**Sebree, Ky.**—The City Clerk is now corresponding with several concerns with a view of getting an estimate on the cost of a water works plant for the town.

**Uniontown, Ky.**—City has selected E. B. Shifley, City Engineer, and Asa Williams of Owensboro, to prepare estimates for water works; plans include driven centrifugal pumps, fire hydrants and water gates.

**Hagerstown, Md.**—Dr. M. L. Price, Secretary and Executive Officer to the Maryland State Board of Health, has recommended the following improvements for the betterment of the city's water supply: A second sanitary survey of Raven Rock Creek and Warner's Hollow Creek and the abatement of all nuisance tending to cause pollution; the diversion of all surface waters from the storage reservoir at Sunthburg or the abolition of the entire Sunthburg system; increasing the capacity of the impound reservoirs at Warner's Hollow Creek and at Sunthburg, and the discontinuance of the use of private wells in Hagerstown.

**Takoma Park, Md.**—Council has adopted ordinance for the extension of the present 4-inch water main on Hickory avenue and the installation of a fire hydrant.

**Walkersville, Md.**—Town is considering the installation of water works.

**Lawrence, Mass.**—City Engineer Marble has been directed to draw plans for gateways and sluiceways in the Spicket River to keep the water at a high level, especially in dry weather.—Wm. P. White, Mayor.

**Marblehead, Mass.**—The Special Committee on Water Supply will recommend the abandonment of the Sagg's Hill plant and embrace into the Metropolitan district; many citizens, however, favor the sinking of more wells and installing a filtration plant.

**Southboro, Mass.**—F. L. Fuller, 12 Pearl street, Boston, has prepared surveys, plans and estimates for the construction of water works.

**Springfield, Mass.**—City has purchased 80 acres of land to be used in connection with the Little River water supply.

**Taunton, Mass.**—City is considering the borrowing of \$100,000 for water works construction.

**Duluth, Minn.**—A new pumping station, equipped with a large electric pump, is planned by the Water and Light Department to supply what is known as the middle district; Manager L. N. Case has already advertised for bids for the pump and plans will be prepared as soon as possible for the pumping station; cost, about \$15,000.

**Mankato, Minn.**—Town has ordered the water mains extended to West Mankato school.

**Spooner, Minn.**—Village is considering the construction of a system of water works, for which bids will be received in the Spring.—C. H. Dodds, Village Clerk.

**St. Louis, Mo.**—The Board of Public Improvements has approved an expenditure of \$210,000 for extension of water mains; \$55,000 to be expended for laying the mains and \$155,000 for material.

**Glasgow, Mont.**—Bids will be received March 12 for \$50,000 bonds voted for the construction of water works.—J. J. Mullins, Town Clerk.

**Arapahoe, Neb.**—Citizens will vote February 9 on the construction of water works; cost, \$24,000; and an electric light plant; cost about \$6,000.—E. C. Wagner, City Clerk.

**Atlantic City, N. J.**—City will lay a 48-inch wood-stave main along the Boulevard.

**Boonton, N. J.**—Mayor C. J. Kapp has recommended the acquisition of the town's water supply plant, a sewerage system, the improving of the streets, street lighting and the numbering of houses.

**Caldwell, N. J.**—Mayor Harrison has recommended the securing of a site for a water supply plant.

**Carlstadt, N. J.**—Citizens are considering the inadequate water pressure for fire purposes.—Borough Clerk Fortenbach.

**East Orange, N. J.**—Mayor Caldwell has concurred in the Water Engineer's recommendation for connection with large main in Newark for emergency.

**Merchantville, N. J.**—The Board of Public Works is discussing ways and means for an improvement in the water supply.

**Midland Park, N. J.**—Collins & Corbin, Jersey City, are considering plans for a water works plant to be erected here.

**North Arlington, N. J.**—City has selected Wise & Watson, of Rutherford, to prepare plans for the proposed water works.

**Bainbridge, N. Y.**—Citizens have voted an appropriation of \$7,000 to extend the intake line about 2,000 feet and install mechanical filters.—E. F. Musson, Norwich, N. Y., Engineer.

**Glens Falls, N. Y.**—City is considering the erection of a large storage reservoir on the Wilkie Brook.—Superintendent West.

**Mount Morris, N. Y.**—The Board of Trustees have entered into a contract with J. F. Witmer, an Engineer of Buffalo, for plans and specifications for a new water works system for the village; the present system is owned by the Mills Water Works Company; plans for the new plant will provide for a reservoir with a pumping station on the flats and mains extending over the entire corporation; cost, about \$40,000.

**Newburgh, N. Y.**—President John A. Benzel, of the Board of Water Supply, has informed the Cassidy Joint Legislative Committee in New York City that the most practicable method of carrying the Catskill aqueduct water across the Hudson would be by a bridge that could also be used for all kinds of traffic.

**Oneida, N. Y.**—The Citizens Committee appointed by Mayor Frost has recommended the laying of a 20-inch water pipe down Broad street and across the North Side.

**Utica, N. Y.**—The Consolidated Water Company is considering the making of an application for permission to the Barge Canal Advisory Board to connect two 40-inch pipes with the proposed reservoir that is to be built in connection with the barge canal at Hinckley, for supplying Utica with water; daily consumption would approximate 70,000,000 gallons.—Vice-President C. K. Corbin.

**Minot, N. D.**—After several years of discussion and the consideration of many schemes for furnishing this city with an adequate water system, the City Council has taken a decisive stand in favor of municipal ownership and has passed a resolution for the construction of a \$160,000 plant; resolution calls for advertising for bids for the relaying of mains and the construction of a pumping station and filtering plant.

**Bartberon, O.**—Council is considering the purchase of a new air compressor for the water works; cost, \$2,500.

**Dayton, O.**—The Walnut Hills Improvement Association has appointed a committee consisting of Charles Ohmer, P. S. Elkenbary and S. B. Barry to secure better Holly water pressure by establishing a new main connecting the dead ends at Creighton avenue in Ohmer Park and Wayne avenue.

**Dayton, O.**—Council will again receive bids for the repair of the Steele Dam; \$10,500 has been appropriated.

**Lowellville, O.**—Village Council is considering the establishment of a water works; estimates and plans have been furnished.

**Rockport, O.**—Proposals will be received February 2, noon, for the purchase of \$9,000  $\frac{1}{2}$  per cent. semi-annual 30-year water main bonds.—Fred Feuchter, Village Clerk.

**Springfield, O.**—Superintendent Geo. Cotter has recommended the construction of a 4-foot dam in Buck Creek, above the water works pumping station, and piping the water to the surface of the present filtration beds, or construction of a movable filtration bed.

**Chattanooga, Okla.**—City has selected Engineer J. G. Yeager, Rich Hill, Mo., to prepare plans for a system of water works; cost, \$25,000.

**Coweta, Okla.**—City has selected Engineer Swanwick, Joplin, Mo., to prepare plans for a system of water works.

**Erick, Okla.**—Citizens have voted a \$27,500 bond issue for water works.—A. G. Gillum, Mayor.

**Hartshorne, Okla.**—Citizens have voted an \$80,000 bond issue for water works.—W. E. Robbins, Secretary.

**Henryetta, Okla.**—Council has created a

light and water commission, composed of W. B. Hudson, John Bastable and Wm. R. Davis, to sell \$50,000 bonds recently voted and then to construct an up-to-date water works system for the town; also, if they see fit, to build in connection with a lighting plant.

**Muskogee, Okla.**—City will soon advertise for bids for laying 21,000 feet of 24-inch water pipe.

**Saltpulpa, Okla.**—Citizens have voted \$65,000 worth of bonds for water works extensions.

**Tulsa, Okla.**—Citizens will vote February 16 on \$20,000 bond issue for improvements to water plant; city has let contracts for pumps.—T. C. Hughes, Engineer; W. E. Rhode, Mayor.

**East Stroudsburg, Pa.**—Citizens will vote in February on \$13,000 bond issue for a large storage reservoir.—Mayor Stemple.

**Connellsville, Pa.**—The Borough Engineer has been instructed to aid Captain J. M. Clark and his corps of sanitary engineers in making a survey of the watersheds of the locality.

**Hazleton, Pa.**—The Light and Water Committee has received petitions for the installing of nineteen fire hydrants.

**Philadelphia, Pa.**—As soon as Councils pass the ordinance making available the \$8,000,000 remaining of the \$10,000,000 loan for filtration purposes, the Department of Public Works will advertise for bids for the construction of an additional filtration plant at Queen Lane pumping station, which will cost between \$2,000,000 and \$3,000,000, and provide upward of 80,000,000 gallons of filtered water every twenty-four hours; these additional filter beds will be next in importance to the Torresdale plant, and provide a supply equal to one-third of that now filtered by the combined beds at Torresdale, Upper Roxborough and Belmont.

**Pottsville, Pa.**—The Pottsville Water Company is considering the construction of a reservoir; new water mains will also be laid.

**Schaeferstown, Pa.**—The Schaeferstown Water Company is being formed here by citizens; water can be brought from three supplies.—Elmer Reist, Secretary.

**Kadoka, S. D.**—City is considering plans for the installing of a water works system.

**Plankinton, S. D.**—Council has decided to construct an elevated tank, to be used in connection with the water works; bids will be received on two tanks, one to have a capacity of 60,000 gallons and erected on a tower 65 feet high; the other, 45,000 gallons, on tower 80 feet high.

**Humble, Tex.**—The County Commissioners have granted franchise to F. A. Peters to construct and operate water works.

**Kaufman, Tex.**—E. E. Thompson, Mayor, will purchase eight or ten carloads 4-inch cast pipe and one or more cars 6-inch standard S. H. soil pipe.

**Orange, Va.**—D. G. Adelsberger, Consulting Engineer, Baltimore, Md., is preparing plans for the construction of a water works system; estimated cost, \$30,000.

**Bellingham, Wash.**—Superintendent Blakeslee has asked for a \$16,000 appropriation for new mains and an \$800 one for a new pump on Sehome Hill.

**Mabton, Wash.**—Citizens have voted a \$21,800 bond issue for the construction of water works.

**Quincy, Wash.**—Bids will be received February 1 by the Town Treasurer for \$18,000 water system bonds.

**Seattle, Wash.**—City Engineer R. H. Thomson has advised the Finance Committee that it will require about \$300,000 for the securing of sufficient land in the Cedar River watershed to protect the water supply of Greater Seattle from pollution from sawmills and other enterprises that threaten to invade some of the tributaries.

**Spokane, Wash.**—Council has instructed the Corporation Council to prepare ordinances for a \$1,000,000 bond issue, one-half for the extension of the city's water system and the other for new bridges.

**Follansbee, W. Va.**—A water company is being formed which will be granted 10-year franchise.

**Parkersburg, W. Va.**—Engineer L. E. Chapman is urging that bids be asked on the following styles of pumps: Vertical, compound-condensing, direct-acting steam pumps; vertical, triple-condensing, direct-acting steam pumps; vertical, triplex pumps, direct connected to a power-head above and driven by a gas engine with direct connection to power-head.

## BIDS RECEIVED AND CON- TRACTS AWARDED

**Los Angeles, Cal.**—The Board of Water Commissioners, James P. Vroman, Secretary, has awarded the Fred M. Prescott Pump Company, Milwaukee, Wis., contract for one and one-third million-gallon pump, six-cycle, triple expansion, direct acting,

head pressure pumped against 350 feet, guaranteed duty per 1,000 pounds, dry steam, 90,000,000-foot pounds, the price being \$4,550.

**Boulder, Col.**—The MacArthur Brothers' Company, 11 Pine street, New York City, has secured contract for the building of the Barker Meadow dam at Boulder, and expects within a few weeks to start work on same; the Barker Meadow dam will be a concrete structure of about 135,000 cubic yards; the length at the surface of the creek is to be about 250 feet, and height of dam above bed rock 180 feet; the length of the crest is to be about 625 feet; the dam is to be built of cyclopean concrete masonry.

**Holly, Col.**—Bids were received January 7 by the city for machinery and installation of the water works plant and the Mine and Smelter Company, of Denver, was awarded the contract for the machinery, and the W. W. Cook Construction Company, of Kansas City, Mo., the contract for the installation work; total cost, \$12,950; time, 90 days.

**Connersville, Ind.**—Bids were received from Harris Air Pump Company, of Indianapolis, to erect plant and connect and put in wells and complete with 140,000-gallon tank at works for \$41,232; Woollen & Callon, Indianapolis, for moving, driving wells, etc., \$33,250; for reservoir of reinforced concrete, \$11,800, and connecting same to mains, \$7,400.—Jacob S. Clouds, City Clerk.

**Holyoke, Mass.**—Daniel O'Connell Sons were awarded contract for doing the brick work on the new intake at the high-pressure reservoir by the Water Commissioners; the O'Connell bid was \$22 a thousand, approximating a cost of \$700 for the brick and stone coping; it is estimated that the entire job will cost \$1,000; the department will direct the entire work, and aside from the brick work will use department men on the job.

**Duluth, Minn.**—The Board of Water and Light Commissioners—J. B. Erd, President; L. N. Case, Manager and Secretary—received bids January 7 for 1,200 tons cast-iron water and gas pipes, with privilege to order 300 tons additional. Prices differed for the various sizes and kinds. Total bids, however, were as follows: United States Cast-Iron Pipe and Foundry Company, \$31,507.80; Lynchburg Foundry Company, \$31,682.70; American Car and Foundry Company, \$32,427.60; J. B. Clow & Sons, \$34,084, delivered. Awarded United States Cast-Iron Pipe and Foundry Company, prices running as follows: 3-inch water, \$30.10 per net ton; all over, \$26.10; Gas 3s, \$31.10; 4s, \$27.10; all over, \$26.10. The Board contracts with R. D. Wood & Co., without competition, for the Matthews improved hydrant, free on board, at \$39.75, any number.

The Board also contracts with Roe Stephens Manufacturing Company for valves, without competition, as follows, free on board, Duluth, any number: 3-inch water, \$4.50; 4-inch water, \$7; 6-inch water, \$10.50; 8-inch water, \$16.50; 10-inch water, \$22.50; 12-inch water, \$32.50; 16-inch water, \$62.50; 3-inch gas, \$4.50; 4-inch gas, \$6.75; 6-inch gas, \$9.50; 8-inch gas, \$14.75; 10-inch gas, \$20.

**Galion, O.**—A. J. Stough, of Galion, has been awarded the contract at about \$7,000 for excavating for the Cleveland, Chicago & St. Louis Railway reservoir north of this city.

**Youngstown, O.**—The Neptune Meter Company, of New York, N. Y., has secured the contract to furnish meters for the Water Works Department during 1909.

**Hobart, Okla.**—The Prescott Steam Pump Company, of Milwaukee, Wis., has secured the contract for furnishing and erecting a pumping engine of 2,000,000 gallons capacity for \$6,800; it will be a cross-compound condensing crank and flywheel Corliss, boiler motive power, 81-120 head pressure pumped against; guaranteed duty per 1,000 pounds, dry steam, 112,000,000 foot pounds.—J. C. Devrough, Engineer of Water Works; Jesse Field, City Clerk.

**Providence, R. I.**—Contract for furnishing cast-iron water pipe has been awarded to the Camden Iron Works, of Camden, N. J.; bids were received as follows: United States Cast-Iron Pipe and Foundry Company, New York, \$24.90 per net ton; Warren Foundry and Machine Company, \$23.40; Camden Iron Works, \$23.20; Allen & Read, Inc., Providence, R. I. (for American Water Works Association specifications), \$23.20.

Commissioner of Public Works Slade has awarded the contract for new fire hydrants to the Coffin Valve Company, Neponset, Mass., the bid being \$3,701; there being 25 flush and 8 special hydrants required, and for water gates to Allen & Read, of this city, whose bid was \$4,000, including four 16-inch horizontal and 20 12-inch vertical gates, 25 8-inch, 125 6-inch and 24 4-inch gates, and 7 special 16-inch and 14 8-inch gates for high-pressure fire service.—Walter F. Slade, Commissioner of Public Works.

**Nashville, Tenn.**—Bids were received by the Board of Public Works January 14 on several hundred feet of genuine square tupper packing, to be used in the Water Works Department. The tupper packing bid on was as follows: Three hundred and sixty linear feet of 1½-inch, 100 feet of 1¼-inch and 50 feet of ¾-inch materials. The Nashville Plumbing and Milling Supply Company were the lowest bidders, placing the bid at 49¢ cents per pound. Other bidders were: Nashville Machine Company, 52 cents; John Bouchard & Co., 58.4 cents; Keith, Simmonds & Co., 51.6 cents; J. H. Fall & Co., 51½ cents, and J. W. Tupper, free on board, New York, 51 cents. All the bidders, except Tupper & Co., propose to deliver the material here.

**Seattle, Wash.**—Contracts have been let to the International Contract Company, New York Block, for the improvement of Crescent Drive and other streets by constructing water mains, at \$11,402, and to the Sparger Concrete Company, Coleman Building, for constructing water mains in Fifteenth avenue, Northeast, and other streets, at \$6,872.—R. H. Thomson, City Engineer.

## LIGHTING AND POWER

**Mobile, Ala.**—The Mobile Electric Company has asked Council for a lease to construct a pipe line from their plant to the foot of Anthony street, where they will also erect a pump house.

**Modesto, Cal.**—Council has granted a franchise to the La Grange Light and Power Company.

**Napa, Cal.**—E. D. N. Lehe, of Dixon, has been granted franchise for a farmers' power line from Napa into Lake County.—N. P. Collins, County Clerk.

**St. Helena, Cal.**—City has granted a 50-year electric lighting franchise to Henry Brown.

**Pasadena, Cal.**—Council has ordered the City Attorney to prepare an ordinance calling a bond issue in the sum of \$150,000 to complete the city's lighting plant.

**Ft. Morgan, Col.**—City is considering plans for the installation of a 150-kw. turbo generator set and a 150-h.p. boiler in the municipal electric light plant.—Geo. Cox, Superintendent.

**Hartford, Conn.**—The Rocky River Power Company is considering the petitioning of the Legislature for a broad franchise to harness the Housatonic River in Litchfield County; dams will be erected at Cornwall and Sharon.

**Quincy, Fla.**—City is considering installation of a new dynamo and engine in the electric light plant.—B. A. Puckett, Manager.

**Thomaston, Ga.**—City is considering plans for extensive improvements and additions to the municipal electric light plant, which will include the installation of a 140-horse-power boiler, one 140-horsepower engine, one 100-kilowatt and one 175-kilowatt alternating-current generator.—H. H. Wheless, Superintendent.

**Sandpoint, Ida.**—The Washington Water Power Company will expend about \$2,000,000 for improvements and development of water power; \$500,000 will be spent this spring; power will be furnished to local institutions, the Coeur d'Alene district and others using electric power for all purposes in the towns of northern Idaho; arrangements have been completed whereby the Pend Oreille Electric Company will be taken over by the companies mentioned and changes made in the plant; it is estimated that 5,000 horsepower will be developed at once.—J. J. O'Brien, of Chicago.

**Aurora, Ill.**—The Light Committee will advertise new bids for the purchase of 10,000 incandescent lamps.

**Cairo, Ill.**—The Street Committee has recommended that an arc light be placed on Twenty-seventh street, a gas lamp on the same street and an arc light on Charles street.

**East St. Louis, Ill.**—Council has granted a franchise to the Citizens' Electric Light & Power Company; company agrees to have plant complete in eighteen months.

**Joliet, Ill.**—The Economy Light and Power Company has prepared plans for lighting by electricity the business districts of Joliet; also for removing all telegraph, telephone and electric transmission lines from the streets.—Chas. Monroe, General Manager.

**Lincoln, Ill.**—The Lincoln Railway & Light Company is planning to install a steam heating plant, using exhaust steam.—C. F. Richardson, Superintendent.

**Moline, Ill.**—The People's Power Company will make improvements to its electric and gas systems; capital has been increased to \$2,000,000.—F. W. Reimers, General Superintendent.

**Springfield, Ill.**—The Springfield Consolidated Railway will enlarge its power station by the installation of a 1,500-kw. unit; type has not been decided upon.

**Sterling, Ill.**—The Rock River Power Company has been incorporated, with a capital of \$78,000, to develop and sell water power. John H. Lawrence, Elmer Crawford and Harry H. Wood, incorporators.

**Wataga, Ill.**—The Village Trustees have granted H. J. Kunkle a franchise for an electric light plant.

**Yorkville, Ill.**—City has decided on the decorative light system; lights will be run up both the large hills on either side of the town.

**Evansville, Ind.**—The Board of Public Works is securing data for a final decision on the question of building a municipal electric light plant.

**Fowler, Ind.**—The Fowler Utilities Company is considering the installation of an engine and generator, direct connected, meters, transformers, overhead material, electric drive for deep-well pumps, boiler settings and switchboard.—R. J. Chapman, Manager.

**West Terre Haute, Ind.**—An electric plant will be constructed near the Fauvre mine, in West Terre Haute; cost, about \$1,000,000. F. M. Fauvre, of Indianapolis, President Citizens' Lighting & Heating Company, is interested.

**Murray, Ia.**—City has granted G. M. Miles, of St. Louis, Mo., an electric light franchise.

**Fowler, Kan.**—Council has granted to R. B. Flesch & Co. a franchise for an electric light plant, water works and ice plant.

**Newton, Kan.**—The Wichita Natural Gas Company will immediately begin the construction of a relay compressing station at Rose Hill, fifteen miles southeast of Wichita, and about forty miles from Newton; new station will cost about \$100,000 and will be completed by March 1.

**Baton Rouge, La.**—The Board of Administration of the Louisiana School for Deaf and Dumb has decided to appoint a committee to look into the possibility of erecting a central power plant to supply light and power to the State Capitol, State Institute for Deaf and Dumb, Institute for Blind and State University.—A. S. Vredenburg, Secretary.

**Baltimore, Md.**—The Park Board will expend about \$20,000 in improvements at Patterson Park, including installation of lighting system at bathing pool and on athletic field; cost, \$4,500; lighting the mall and providing permanent seats, \$5,000.—F. C. Latrobe, President.

**Baltimore, Md.**—Borst & Co., 349 Equitable Bldg., Baltimore, Md., will purchase cast-iron lamp posts.

**Cambridge, Md.**—R. B. Fentress and others have formed the Cambridge Light and Power Company to construct an electric light plant.

**Denton, Md.**—Council has received an application for a franchise from a company which wants to build and operate an electric light plant.

**Hagerstown, Md.**—The local railway company will install a 150 or 200-kw. 550-volt belted generator; company will consider the use of a good second-hand machine without a switchboard.

**Blackstone, Mass.**—The New England Securities Company, which controls the New York, New Haven and Hartford's street railway properties in Massachusetts, is considering the erection of a 40,000-horsepower electric power station at a cost of about \$300,000.

**Grand Ledge, Mich.**—The Grand Ledge Gas Company is considering the installation of some new machinery.—E. E. Edwards, Secretary.

**South Range, Mich.**—The local gas plant has been wrecked by an explosion.

**Hokah, Minn.**—The Weber Flour Mill Company will install an electric light plant and furnish the village with electric light.

**Pine City, Minn.**—A company will be formed, to be known as the Pine City Power Company, with a capital of \$50,000, to develop about 600 horse-power; there will be eight miles of transmission line, bids for construction will be received in March; cost, about \$25,000.—J. M. Allen, Engineer; R. P. Allen, Vice-President.

**Red Lake Falls, Minn.**—Council is considering the renewal of the lighting franchise to the Red Lake Falls Electric Light Company.

**St. Paul, Minn.**—City has received revised plans for the proposed new municipal plant from Robert W. Hunt & Co., Chicago and New York; the Board of Public Works is preparing to ask for proposals for 1,000 arc lights of 2,000-candlepower each.

**Houston, Miss.**—City is considering the installing of a new 125-kilowatt generator in the municipal electric light plant.—J. C. Arnold, Manager.

**Laurel, Miss.**—The Meridian Light and Railway Company has made no arrangements for constructing water power electric plant.—A. B. Patterson, Superintendent.

**Missoula, Mont.**—Seven large dams will be constructed in the St. Joe River during the next two years, which, when completed,

will be used to generate electric power that will run its trains through the mountain country; a company capitalized at \$500,000 and known as the Idaho Water and Electric Power Company has been organized for the purpose; plans have been drawn and all estimates made for the dams and active work will be started as soon as weather conditions will permit; electric trains will be put on as soon as the dams and power houses are completed; dams will be built in the St. Joe, extending from above Hoyt's flat down river toward the town of St. Joe; two of the dams will be on the Coeur d'Alene forest reserve; total cost of building these dams is estimated at about \$300,000 to \$400,000.

**Loretto, Neb.**—E. J. Mills is considering the installation of a modern electric light plant.

**McCook, Neb.**—The McCook Electric Light Company will immediately rebuild its plant entirely.—A. R. Scott, Manager.

**Oakland, Neb.**—M. A. Drager, of Emerson, and R. H. Burton-Smith, of Sioux City, Ia., will remodel the city power plant.

**Reno, Nev.**—F. G. Baum, President of the Nevada-California Power Company, accompanied by A. A. Lardner, of London, England, and S. Storson, of New York City, both prominent financiers, are inspecting the property of the Fleishhacker with the intention of taking over all the power company's interests in this section of Nevada, making one large holding company, capitalized at \$25,000,000; the financing of the new company will be done in London and New York by Lardner and Storson; greater power system will be established and many new improvements made after the new corporation acquires the property.

**Elberon, N. J.**—The Lighting Committee has recommended the installation of electric lights in place of gas lights.—Chairman Sherman, Long Branch.

**Jersey City Heights, N. J.**—The Merchants' Co-operative Association is planning to light Central avenue from Boor-aem avenue to North street with arches of incandescent lights.—Edward O. Lampo, Secretary.

**Plainfield, N. J.**—The Merchants' Association is urging the lighting of the business section of the city with arc lights.

**Dansville, N. Y.**—Village Trustees are considering propositions and hearing views of citizens relative to the improving by lighting of the streets; the Dansville Gas & Electric Light Company and the Acron Brass Company have made offers.

**Dunkirk, N. Y.**—The Water Board has directed Superintendent Thomas P. Donovan to install three additional arc lamps on East Third street, one on Brigham road, one on upper Eagle street, one at Dove and Front streets and one at Lincoln avenue and Benton street; it is the intention of the Board to supply all the street arc lamps that are needed about the city.

**Newport, N. Y.**—The Newport Electric Light and Power Company will extend its transmission lines to Poland this year.—Geo. T. Woodin, President.

**Grand Forks, N. D.**—The Street Light Committee, making a selection of a new street lighting system to be installed in Grand Forks, is considering a proposal with C. De Ryan, of Chicago, who is an authority on the subject, being connected with the General Electric Company.

**Cambridge, O.**—The Special Committee has reported that a complete estimate of the cost of installing a municipal lighting plant for Cambridge called for the expenditure of about \$30,000; it is also estimated that it would cost \$6,000 per year to operate the plant, which would mean a saving of \$4,000 per year to the city over the present expense for lighting.

**Cuyahoga Falls, O.**—The Board of Public Affairs has asked Council for an appropriation of \$70,000 for additional machinery and improvements at the municipal light plant.

**Portsmouth, O.**—City has not yet awarded contract for lighting the streets, alleys and public places with electricity, gas, gasoline, alcohol or other illuminating medium for a period of three, six or ten years.—Geo. H. Schneider, President Board of Public Service; Martin W. McMahon, Clerk.

**Toledo, O.**—Council has ordered electric lights placed at Haneman and Walnut streets, Hawthorne and Hicks streets and Bronson avenue and Lagrange street.—J. M. Babcock, Clerk of Council.

**Portland, Ore.**—Mayor Lane has had a proposal made to him by an electrical engineer to utilize the power in the Bull Run pipe line to generate electricity with which to light the streets and municipal buildings of the city; this engineer proposes to erect an electric plant in the Mount Scott district, where it is said the water in the pipe line has a fall of several hundred feet; several thousand horse-power can be generated with little cost to the

city, once the generating plant was installed.

**Chester, Pa.**—Council has received a petition for twelve lights.

**New Brighton, Pa.**—The Valley Electric Company will install a 500-kw. turbine unit in its plant.—C. A. White, Manager.

**Pittsburg, Pa.**—The Pan Handle Electric Company, of Pittsburg, has been incorporated with a capital of \$80,000 to construct an electric light plant. Joseph Bryan, S. M. Dunbar and J. L. Merrill, of Pittsburg, Pa.; H. R. Randolph, Suter Station, Pa., and Armor S. Cooper, of New Cumberland, W. Va., Promoters.

**Slatedale, Pa.**—The Slatedale Electric Light, Heat & Power Company has been granted a charter; capital, \$10,000.—William Rex, President; Henry W. Bloss, Secretary.

**St. Marys, Pa.**—The St. Marys Electric Company is considering plans for the changing of its plant from 133 to 60-cycle system.—Edward Heath, Secretary.

**Blacksburg, S. C.**—Citizens have voted an issue of \$15,000 bonds for the construction of an electric light plant.—P. H. Freeman, Chairman of Public Works Commission.

**Florence, S. C.**—The Southern Public Service Corporation is considering the general rebuilding of its plant.—H. N. Cassell, Local Manager; P. A. Wilcox, Receiver.

**Knoxville, Tenn.**—Chairman John W. Fenniken, of the Board of Public Works, is now figuring on the cost of installing a dynamo in the Commerce avenue fire station and furnishing electric lights for this station and police headquarters and the Market house.

**Bay City, Tex.**—Dr. W. M. Cane, who has owned and operated the electric light and ice plant in this city, has sold the entire plant to W. G. Wilcox, recently from Joliet; new management has taken control and will begin at once to double the capacity of the plant.

**Dallas, Tex.**—Residents living near Cochran and Rouths streets have petitioned for light and water service.

**Kaufman, Tex.**—City will purchase water wheel to produce 10 horsepower.—E. E. Thompson, Mayor.

**Marshall, Tex.**—W. H. Sedberry will run a pipe line to the Caddo gas field for a supply of gas for this city.

**Sanderson, Tex.**—The establishment of an electric light plant is being promoted by E. McGinley, of El Paso.

**Terrell, Tex.**—City will receive bids about February 10 for construction of electric light plant; cost, \$15,000.—E. R. Miller, Secretary.

**Salt Lake City, Utah.**—City Engineer L. C. Kelsey has recommended that Council make a change in the lighting system. Mr. Kelsey is urging that the city adopt a provision for four large arc lights for each intersection, cluster lights on either side of the street, with no poles anywhere on the street, and eventually a new asphalt surface on Main street.

**Charlottesville, Va.**—Superintendent Houtzman, of the City Gas Works, is urging the necessity of installing another bench at the gas plant.

**South Hill, Va.**—Franchise for electric lighting plants for this town was granted January 18, to South Hill Manufacturing Company, and franchise for telephone system to N. G. Smith; both are to be operating within four months from that date.—Mack Pritchett, Town Clerk.

**Granite Falls, Wash.**—The Granite Falls Electric Company is considering plans for the changing of its system from single-phase 133 cycles to 3-phase 60-cycles.—C. H. Cleaver, Secretary.

**North Yakima, Wash.**—The Norman Brothers, proprietors of the Hotel Tacoma and the Spokane and Yakima hotels, will soon begin the erection of a large power plant from which they will send sufficient power to light the entire business district of North Yakima, as well as light their own hotel; the company will also install a central heating plant in connection with the light plant.

**Port Townsend, Wash.**—A Seattle syndicate, known as the Peninsular Light and Power Company, has made application for a franchise for electrical power transmission from the Dosewallip River to Port Townsend; application presented to the Board of Commissioners was signed by D. S. Chapman and J. R. Denny, both of Seattle; intention of the company is also to transmit power to the Bremerton Navy Yard.

**Seattle, Wash.**—The Seattle Electric Company will erect a power station, terminal and car shops at East Jefferson street and Thirteenth avenue.—Stone & Webster, 147 Milk street, Boston, Mass. General Managers; George P. James, Chief Engineer.

**Toppenish, Wash.**—Council has granted an electric lighting franchise to the Northwest Light and Water Company.

**Kearneysville, W. Va.**—The Winchester

& Washington City Railway Company is considering the construction of transmission lines to Kearneysville and other points.—S. H. Hansbrough, President, Winchester, Va.

**Wheeling, W. Va.**—The City Gas Trustees are considering matters pertaining to the rebuilding of the gas plant and the laying of new mains.

**Crivitz, Wis.**—The Northern Hydro Company, of Green Bay, Wis., has finished its plans for developing power at High Falls on the Peshtigo River about 15 miles from this city; work will begin very soon; company will build a concrete wall one mile long for the purpose of creating a reservoir, contract for which has been let; estimated cost of the entire undertaking is \$2,000,000, and it will take two years to complete the work; power will be transmitted to Green Bay to run the street cars and to light that district; over 5,000 horsepower will be developed.—D. W. Mead, Madison, Wis., Chief Engineer.

**Mahomen, Wis.**—Village has rejected all bids for installing an electric light plant.—A. O. Vachon, Village Recorder.

**Meeteetse, Wyo.**—Fred C. Schaub, of Cody, will install an electric light plant; cost, about \$8,000; power will be generated by water from Greypull River.

**Sheridan, Wyo.**—The Sheridan Electric Light and Power Company are considering plans for the installation of a 500-kw. 60-cycle 2,300-volt unit.—Judson Bigg, Manager.

**Edmonton, Alta., Can.**—An additional 1,000-kw. generator and engine will be installed in the municipal electric light plant.—A. W. Ormsby, Superintendent.

**Ft. William, Ont., Can.**—The Board of Water, Light and Telephone Commissioners are considering plans for general extensions to the municipal electric light plant; \$10,000 has been voted.—Chas. J. Moors, Superintendent.

**MacLeod, Alta., Can.**—Bids are now being received for two new boilers and a 260-kw. direct-connected generator for the municipal electric light plant.—G. H. Altham, Superintendent.

**Montreal, Que., Can.**—The Saraguay Electric & Water Company is considering plans for the construction of about two miles of transmission lines.—E. Champagne, Manager.

**Tweed, Ont., Can.**—The Tweed Electric Light and Power Company will install a 100-kw. 2 or 3-phase generator.—J. T. Kissack, Secretary.

#### BIDS RECEIVED AND CONTRACTS AWARDED

**Oakland, Cal.**—The Seventh Street Improvement Club has awarded contract for furnishing and erecting 150 electroliers on Seventh street to the United Iron Works, Second and Jefferson streets, Oakland, at \$16,000.

**Augusta, Ga.**—The Twin City Power Company, 10 Bridge street, New York City, has plans for dam on file and construction will begin as soon as the Government approves plans; the dam is to be of steel, with concrete, 60 feet high from mean low water, capable of generating 48,000 horse-power, including primary and secondary power. It will cost about \$3,000,000 and will require about a year and a half to complete. The Amburson Hydraulic Construction Company, 176 Federal street, Boston, Mass., has the contract for construction.—Thomas O'Connor, 54 Broad street, Waterford, N. Y., president Twin City Power Company.

**Aurora, Ill.**—Mayor Finch cast his first vote in Council and incidentally it was the first time that an Aurora executive has been called upon to break the tie in the Council in almost thirty years, when the Mayor voted on a tie that developed following a recommendation of the Light Committee that a contract for 10,000 incandescent lamps be let to the Western Electric Company of Chicago. An Aurora firm, the Mechanical Supply Company, was also a bidder, the only difference being that the Chicago company offered 2 per cent. for payment within thirty days, while the Aurora firm offered no discount. The city does not pay bills within thirty days because of the fact that the bills must be presented to the Council, then to the Appropriation Committee, which investigates it before it is paid. Because of the fact that the offer of 2 per cent. discount for payment within thirty days would mean nothing for Aurora, Mayor Finch voted no, and the recommendation that the Chicago firm be awarded the contract was lost. The lights come at about twenty cents apiece. Alderman Kartheiser afterward put a motion that the Light Committee be instructed to advertise for new bids and the measure was adopted.

**Lockport, Ill.**—The Drainage Board of Chicago, on January 15, awarded contracts for necessary machinery and apparatus to increase the output of the water power

plant at Lockport, as follows: For new generator, to the Western Electric Co., Chicago, for \$25,748, and to W. J. Jackson, Chicago, for furnishing necessary transformers for \$18,500.

**Springfield, Ill.**—The Springfield Light, Heat & Power Company has let contract for a generator to the General Electric Company, of Schenectady, N. Y., at \$15,000, and contract for a condenser to the Reeves & Skinner Machinery Company, Chemical Building, St. Louis, Mo., at \$15,000.—E. G. Schmidt, general manager.

**Arkansas City, Kan.**—The Land & Power Company has awarded to the Freeborn Engineering Company, of Kansas City, Mo., the contract for constructing power plant, and to the Allis-Chalmers Company, of Milwaukee, Wis., the contract for the machinery for same; the buildings will all be in reinforced concrete and steel construction; cost of plant, \$40,000.

**Cambridge, Md.**—The Cambridge Light & Power Company, in which R. B. Fentress, Seaboard Bank Building, Norfolk, Va.; Phillips L. Goldsborough, Custom House, Baltimore, Md., and others are interested, was awarded contract to Wehr, Walden & Dukehart, engineer agents, Baltimore, for installation of plant of approximately 200-kilowatt capacity.—W. H. Medford, city.

**Buffalo, N. Y.**—John W. Danforth & Company have secured the contract for constructing the steam main connecting the new north boiler house to the pumping station for \$8,295.

**Pittsburg, Pa.**—The city has contracted with the local agency of the Westinghouse Electric and Manufacturing Company for 1,200 metal flame arc lights at a cost of \$30,000; the lights are the latest form of street illumination, and will be used on the North Side in connection with the municipal lighting plant. It is the largest order for these lamps ever received by the electric company.

**Nashville, Tenn.**—Contracts have been awarded by the Board of Public Works for the construction of the addition to the city electric light plant. The successful bidders and the accepted prices were as follows: Steel work, Stewart & Bruckner, price, \$2,250; carpentry, W. F. Holt, \$5,500; brick work, J. H. Hutchinson & Sons, \$4,699; concrete work, Adamant Stone & Roofing Co., \$2,882; roofing, Minton & Watkins, \$1,395; painting, S. J. Underwood, \$532; drains for rain water and waste pipes, Ryan & Son, \$427; cut stone, Oman Cut Stone Company, \$338.40. This aggregates a total of \$18,023.40.

**Floresville, Tex.**—The contract for the construction of an electric light plant in Floresville has been signed by the Mayor and contractors, T. J. & F. Largen; work to commence in six months from December 31 and to be completed in one year from date of commencement.

**Emporia, Va.**—Greensville Water Power Company, W. Samuel Goodwin, President, has completed final arrangements for awarding contract to Stampers Bros. & Raglan and E. T. D. Myers, Jr., Commonwealth Bank Building, Richmond, for construction of hydro-electric plant; dam of concrete, 690 feet long by 40 feet high over spillway, and 52 feet in height over wing walls; power-house of concrete and equipped with four turbine wheels with capacity of 700 horse-power each; concrete will amount to about 14,000 cubic yards; water will be backed about seven miles upstream, and will average about 800 feet in width; cost, including machinery, about \$100,000; stone for work will be quarried about 2,000 feet above site of dam.—C. P. E. Burgwyn, Richmond, engineer.

**Green Bay, Wis.**—Contracts aggregating over \$1,000,000, have been awarded by the Northern Hydro-Electric Company for the construction of the power-house, dam and other parts of the work at High Falls, on the Peshtigo River in Stephenson County, from which point electric power is to be transmitted to this city for use by the Green Bay Traction Company and the Green Bay Gas & Electric Company. The Bates-Rogers Construction Company of Chicago, has the contract to build the dam and power house; the steel towers contract went to the Aeromotor Company, of Chicago; the John A. Roebling's Son's Company has the contract to furnish the copper wire, which amounts to 650,000 pounds; the Allis-Chalmers Company, of Milwaukee, holds the contract to furnish the turbines and generators, and the Sandusky Portland Cement Company to supply cement for the work; the first order of cement amounts to 20,000 barrels; T. J. McGrath was given the contract to haul this big quantity of material from Crivitz to the scene of operations, a distance of 14 miles.

**Oshkosh, Wis.**—The Bates-Rogers Construction Company, of Chicago, Ill., has secured the contract for constructing a dam and power plant for the Northern Hydro-Electric Power Company; it will be constructed across Peshtigo River, about 14

miles west of Crivitz; probable cost, \$1,000,000.—D. W. Mead, Madison, Engineer.

**Glencoe, Ont., Can.**—Council has awarded the contract for the erection of a gas producer power plant for the municipal electric light plant to the Colonial Engineering Company, of Montreal, Que.

**Toronto, Ont.**—Hon. Adam Beck, Chairman Hydro-Electric Commission of Ontario, Confederation Life Building, Toronto, has announced that the extension of the contract with F. H. McGuigan will be considered and a line from London to Windsor probably determined upon; present plans call for 293 miles and the extension would be 128 miles, a total of 421 miles.

### FIRE EQUIPMENT

**Tuscaloosa, Ala.**—Fire Chief G. B. Davidson has recommended the purchase of from 500 to 700 feet of additional hose.

**Hot Springs, Ark.**—City is considering the need of another engine; more ladders, hose and other equipment may be purchased.

**Tucson, Ariz.**—Chief S. Y. Barkley has recommended the establishment of a central fire station and at least two branch stations.

**Alameda, Cal.**—City is considering purchase of 1,500 feet of hose.

**Berkeley, Cal.**—Town Trustees are considering a \$10,000 appropriation for a fire house at Station No. 2.

**Melrose, Cal.**—A modern fire department will be organized and equipped; L. Casttero has been elected Chief.

**Oakland, Cal.**—The Finance Committee has recommended that \$499 be appropriated for the use of the police and fire alarm system for the equipment of additional boxes.

**Quincy, Cal.**—The local hose company is planning to secure a ladder truck and another hose cart.

**San Bernardino, Cal.**—Plans will be revised and new bids asked for the proposed new fire station.

**Deary, Id.**—Citizens have organized a volunteer fire department.—William Hunter, Chief.

**Itasca, Ill.**—Town has organized a volunteer fire department.—H. H. Seils, Chief.

**Virden, Ill.**—City will purchase a fire engine.

**Mishawaka, Ind.**—Council is considering an ordinance for the borrowing of \$10,000 for the purchase of a site and the equipping and construction of a hose house.

**Topeka, Kan.**—City Engineer J. P. Rogers has been instructed to prepare plans for a new fire station at the corner of Seward and Woodruff avenues; a combination chemical and hose wagon will be installed.

**Covington, La.**—Council has set aside funds for the erection of the two fire houses, one for the hook and ladder truck and the other for the apparatus of the bucket brigade.

**New Orleans, La.**—With the increased appropriation for 1909 the Board of Fire Commissioners hopes to improve the service by the addition of three additional steam engine companies, one additional hook and ladder truck company and one additional chemical engine company.

**Kingman, Me.**—Town is considering the need of better equipment.

**Williamsport, Md.**—Citizens will vote March 1 on purchasing an engine for volunteer company.

**Palmer, Mass.**—Citizens will vote on a special appropriation for fire equipment.

**Springfield, Mass.**—The Fire Commissioners have decided that Stearns Park is the best location for a new fire headquarters, and with this belief in view they are now endeavoring to secure the consent of the heirs of the donor, who gave the park to the city, for permission to erect the proposed headquarters on that site provided no objections are made by the Park Commissioners or the city government.

**Taunton, Mass.**—The Chief Engineer of the Fire Department has recommended the addition of an automobile to the fire equipment.

**Kalamazoo, Mich.**—The Board of Police and Fire Commissioners have recommended that fire escapes be placed on 33 buildings.

**Canterbury, Minn.**—Town is considering plans for the erection of two fire houses.—Chief Canterbury.

**South Omaha, Neb.**—The National Board of Underwriters, in the matter of fire protection, has suggested the following improvements: New second-size steamer, a modern ladder truck to be equipped with deluge set, smoke helmets and six water-proof covers, a second-size engine, a hose cart at stations 1 and 2, hose cart at No. 2 to have chemical tank at least thirty-five gallons, also turret nozzle; establishment of a hose company with combination hose wagon, with at least thirty-five gallon chemical tank and 800 feet standard fire hose and an equal amount of reserve fire hose; providing the present fire alarm sys-

tem with a modern switchboard and at least twenty-five additional non-interfering successive type fire alarm boxes.

**Jersey City, N. J.**—Fire Chief John Conway has recommended the purchase of 10,000 feet of hose and 25 additional fire alarm boxes; the equipping with a new steamer of Engine Company No. 9 and all companies not equipped with hose combination wagons be supplied with same at once; the establishment of eight new engine and two hook and ladder companies; the rebuilding of engine house No. 8 and the erection of a new fire house.

**Millville, N. J.**—City is considering an appropriation for a combined chemical and hose wagon.

**Morristown, N. J.**—City will purchase a new hose wagon for Washington Engine Company; 500 feet of hose and new extension ladders for Resolute Hook and Ladder Company.

**Ocean City, N. J.**—City is discussing purchase of an auto hose and chemical wagon.

**Fassalac, N. J.**—City is considering the need of 6,000 feet of hose, a new engine, extinguishers, rubber tires for one of the extra wheels of the hook and ladder truck and six automatic couplings.

**Paterson, N. J.**—The Police and Fire Committee will engage an architect to draw plans for the proposed new engine house at the corner of Seventeenth avenue and East Twenty-sixth street.

**Phillipsburg, N. J.**—Fire Chief Pfister has asked for three additional alarm boxes.

**Rockaway, N. J.**—Fire Chief E. M. Loewenthal has recommended the construction of a new fire house.

**Sea Isle City, N. J.**—Mayor B. J. Quinn has recommended the establishment of a fire house at Townsend's Inlet.

**Trenton, N. J.**—The Board of Fire Commissioners is urging the equipping of the heavy engines and trucks with hand-brakes; also the installation of additional fire-alarm boxes and key-guards for boxes.

**Verona, N. J.**—Mayor Robert Palm has recommended the organization of an efficient fire department and the procuring of a site for housing the apparatus.

**Bellmore, L. I., N. Y.**—Citizens will purchase a chemical engine.

**Oneida, N. Y.**—The Citizens' Committee appointed by Mayor Frost to investigate the needs of the city in regard to fire protection has recommended the purchase of a new hook and ladder truck and a gasoline engine, at a cost of \$6,000; also the erection of a fire station at a cost of \$15,000.

**Ontario, N. Y.**—The Ontario Mutual Fire Department will purchase a good gasoline engine and equipment.—S. B. Hogeboom.

**Pendleton, N. Y.**—Town is considering purchase of fire apparatus.

**Rosedale, L. I., N. Y.**—Citizens are urging better fire protection; effort is being made to secure a regular city-paid fire-fighting force and apparatus; if this fails, chemical engine will be purchased.—Dr. M. B. Feeney, Max Wyner and Chauncey Winne, Committee.

**Schenectady, N. Y.**—Commissioner of Public Works Moffett has recommended a new station house in the second precinct.

**Syracuse, N. Y.**—Commissioner of Public Safety Harlow C. Clark has recommended the installation of a modern fire alarm telegraph system.

**Syracuse, N. Y.**—The Board of Estimate and Control has been authorized to consider the purchase of two lots for new fire houses.

**Akron, O.**—The Safety Board is considering petition of the East Akron people for additional fire protection; request is for auto fire apparatus.

**Canton, O.**—Chief Mesnar has recommended that the aerial truck at No. 6 station be rebuilt or traded for a new 70-foot truck; two engines for factory district; 400 feet of chemical hose; set Marine Company's fireman's searchlights; a shut-off nozzle; cellar nozzle; three Cooper hose jackets; eight hand electric lights; twelve state chains; twelve tug-snaps and twelve line-snaps.

**Dayton, O.**—City will sell \$3,500 bonds to provide funds for the erection of an engine house.

**Dayton, O.**—City will receive new bids for a \$14,000 engine house on Jersey street.

**Dayton, O.**—The Walnut Hills Improvement Association has endorsed the addition of a ladder truck at the Wayne avenue engine house.

**Mansfield, O.**—City has selected Architect Vernon Tedding, North Main street, to prepare plans for a fire station.—C. W. Mitchell, President Board of Public Safety.

**Ashland, Pa.**—Funds are being raised for the purchase of a chemical engine.

**Boswell, Pa.**—The local volunteer company is soliciting funds for the purchase of an engine.

**Bradford, Pa.**—Mayor R. J. Hoffman has recommended the overhauling of the Fire Department's wagons; purchase of a new combination chemical truck, and the placing of a handcart in the Fifth Ward, and,

if possible, one at the center of the Second Ward; also that headquarters should be provided with a steam engine.

**Connellsville, Pa.**—Council has been petitioned to secure prices on another fire wagon which is needed.

**Hazleton, Pa.**—Council has received an ordinance providing for the purchase of coats for the Pioneer Fire Company and the advertisement for bids for purchasing 2,000 feet of fire hose.

**Johnstown, Pa.**—Mayor Alex Wilson has recommended the placing of fire alarm wires underground in the First, Second, Third and Fourth Wards; also the installation of additional fire alarm boxes and purchase of 2,000 feet of hose.

**Pittston, Pa.**—Mayor Gillespie has approved ordinance for the purchase of 1,000 feet of hose.

**Somers Point, Pa.**—Citizens will establish a fire department.—John M. Campbell, Mayor.

**Gettysburg, S. D.**—A volunteer fire company has been organized.—J. F. Sargent is Fire Marshal.

**Dallas, Tex.**—The Board of Municipal Commissioners have ordered bids for the erection of a fire station at Oak Lawn and for the furnishing of the new apparatus and equipment for the station; cost of house, \$20,000.

**Timpson, Tex.**—Town is considering purchase of a chemical engine.

**Martinsburg, W. Va.**—The Presidents of several ward fire companies have recommended additional equipment be provided for their companies.

**Racine, Wis.**—E. R. Townsend, Engineer, has again recommended the purchase of an automobile for the Fire Chief.

### BIDS RECEIVED AND CONTRACTS AWARDED

**San Bernardino, Cal.**—A purchase of 350 feet of hose has been made from the Voorhees Rubber Company for the Fire Department.

**Benwood, W. Va.**—The Consolidated Fire Hose Company and the Eureka Fire Hose Company have secured contracts of 500 feet of hose each; the hose selected was of the best quality manufactured, and will be fully guaranteed; the Eureka Company bid 90 cents and the Consolidated Company, represented by the McDonald Hose Company, of Wheeling, bid 75 cents a foot.

### ELECTRIC RAILWAYS

**Huntington, Ark.**—A company is being formed to construct an interurban line to connect this place with Midland and Hartford.—D. W. Patton, Muskogee, Okla., Promoter.

**Chicago, Ill.**—The Mount Hope Traction Company has been incorporated in Illinois to construct and operate street railways; capital stock, \$1,000. Samuel P. Farly, Jr., T. Hood Little and Victor E. Lindle, Incorporators.

**Murphysboro, Ill.**—The local street railway company will purchase two electric motor cars.

**Watertown, Ill.**—The Tri-City & Northeastern Interurban Railway Company has applied for a charter to build and operate a line from Watertown to Albany. George W. Turner, F. E. Baker, of Hampton; Wm. H. Adams and F. M. Mitchell, of Rapids City; J. W. Simonson and William Ashdown, of Port Byron; Edward Cool and George Bryan, of Cordova; C. E. Peck and J. S. Byers, of Albany, all in Illinois; J. W. Crowley, Daniel E. Keeler, Gust. M. Hodges, John E. Mahon and Herman Diehn, of Davenport, Ia., Incorporators.

**Indianapolis, Ind.**—The Indiana, Ohio & Illinois Railroad Company will commence work on its projected railway; line will connect Indianapolis and Chicago and intervening points; length, 200 miles; capital, \$5,000,000; general office, 5526 University avenue, Indianapolis.—Thomas P. Kiser, Indianapolis, President and General Manager; John E. Clark, Carmel, Superintendent.

**Charlotte, Ia.**—Citizens have subscribed for about \$15,000 worth of stock to aid the Clinton, Maquoketa, Cascade & Dubuque Interurban.—J. T. Wilcox and others, Promoters.

**Waterloo, Ia.**—The Iowa Railroad Company, it is announced, will soon let construction contracts for building its proposed railway, to connect the cities of Waterloo, Cedar Falls, Fredsville, Dike, Lincoln, Grundy Center, Eldora, Hubbard, Garden City, Story City, Ames, Kelley, Huxley, Ankeny and Des Moines; from Story City a branch will run to Boone, Moingona and Perry; length, 130 miles; Henry S. Osborne, 1402 Ashland Bank, Chicago, Ill., President; Andrew Stevenson, Chicago, Ill., First Vice-president and General Manager; James F. Hardin, Eldora, Second Vice-president and Treasurer; L. W. Harris, Eldora, Secretary; George Welsby Scott, Security Bldg., Chicago, Ill., Chief Engineer.

**Lewiston, Me.**—A high speed trolley road will be built from this city to Portland; it will pass through the towns of Falmouth, Cumberland, Gray, New Gloucester and connect with the Portland Railroad near Deering Junction and with the Augusta & Waterville road at a point about one mile from the city of Auburn; distance from the starting point at the junction of Lisbon and Main streets in this city to its terminus in Monument square, Portland, is about 35 miles; new road to be constructed is about 30 miles; survey of this line has just been completed by Engineer John A. Jones; construction will be of high class, with the object in view of making fast time; cost of building the road fully equipped will be \$20,000 a mile, a total of \$600,000; amount of bonds to be issued will be \$500,000. Promoters are: Edward W. Gross, of Auburn, President; John D. Clifford, of Lewiston, one of the Directors, and Charles C. Benson, Treasurer.

**Oakland, Md.**—The Oakland, Swallow Falls & Uniontown Electric Railway Company has located and surveyed the route for its projected railway; line will run from Oakland, Md., to Uniontown, Pa., with a single track, branch from Swallow Falls down the river about two miles, to the hydro-electric plant; also a single track branch from Cranesville, on the main line, to Kingwood, W. Va.; length, fifty miles. A hydro-electric power plant will be erected at a point about six miles north of Oakland; capital, \$150,000.—A. G. Sturgiss, President; Bowie Johnson, Secretary; James D. Hamill, Treasurer; H. P. Tasker, General Manager, of Oakland; J. B. Hogg, Connellsburg, Pa., Chief Engineer.

**Clayton, Mo.**—The St. Louis, Creve Coeur & Western Railway has been incorporated for the purpose of building an electric railway from the city limits of St. Louis to Creve Coeur Lake; construction will be started March 1; company will have 14 miles of double track; capital stock, \$140,000.

**El Dorado Springs, Mo.**—The El Dorado Springs, Tiffin, Monegaw & Lowry City Railroad Company will begin construction work on electric railroad in the spring; line will run from El Dorado Springs to Tiffin, Oyer, Monegaw Springs, Chalk-level and Lowry City, Mo.; distance, 30 miles; power plant will be erected on the Osage River. Dr. C. A. Edgar, El Dorado Springs, Mo., President; J. W. Kennerly, Tiffin, Mo., Vice-president; J. S. Harrison, Tiffin, Secretary and General Manager; J. W. Reeder, El Dorado Springs, Treasurer.

**Kansas City, Mo.**—The final survey of the Kansas City-Southeastern Traction Company for the proposed electric road between Kansas City and Lone Jack has been completed; work will begin soon on the line, which is one of the several divisions to be built which will result in a through line from Kansas City to Jefferson City, with two or three branch lines.

**Lewiston, Mont.**—The Citizens' Electric Company is considering the construction of an extension to Moore.

**Elizabeth, N. J.**—Plans are being formed for the construction of a trolley line from Elizabeth to Linden by way of Rahway avenue; conference will be held soon with the Public Service officials.

**Perth Amboy, N. J.**—Papers have been filed in Trenton for the organization of the Traction Development Company, capital stock \$100,000, to secure franchises, rights-of-way and engineering plans for the Elizabeth & Amboy Traction Company, a new trolley system to operate between the Court House in Elizabeth and Smith and State streets, Perth Amboy; route of the line will be through the Standard Oil Works near Elizabeth, the East Linden Development Company, crossing the Rahway River over the cantilever bridge of the Short Line Trolley Company; thence into Carteret, Chrome, Port Reading and Woodbridge to Perth Amboy, coming into this city by way of Amboy avenue; incorporators of the company are Richard F. Pettigrew, Richard M. Montgomery, Dr. H. B. Hoagland, W. J. Lansley, Charles A. Trimble, of Elizabeth, and Peter A. Peterson, of Perth Amboy, representing the organization syndicate; actual work of building the line will begin within the next sixty days, probably at Linden, where the company has a private right-of-way of several miles; road will be building there while the franchises are pending at Elizabeth, Roosevelt and elsewhere; J. A. McClary, of Rahway, has charge of the rights-of-way and engineering plans of the company; Percival E. Jones is general counsel for the company, with offices at 27 Pine street, New York; local office of the company will be at 63 Smith street and there will be another office in Broad street, Elizabeth.

**Pleasantville, N. J.**—The Atlantic & Suburban Traction Company will soon purchase five new 40-foot convertible cars; J. G. Brill Company will probably receive the order.

**New York, N. Y.**—The Board of Estimate has granted a franchise to the Brooklyn, Queens County & Suburban Railroad.

**Syracuse, N. Y.**—General Manager C. Loomis Allen, of the Rapid Transit Company, has consented to install new illuminated signs in all street cars, entailing an outlay of \$17,000.

**Waynesville, N. C.**—The South Atlantic & Transcontinental Railway Company has begun survey for its proposed line; company plans to build an electric railway to connect Greenville, S. C., via Waynesville, N. C., with Knoxville, Tenn., and to build a branch from Waynesville to Hendersonville and Asheville, N. C.—S. A. Jones, Promoter.

**Monango, N. D.**—Town will install an electric light plant in the near future.

**Hamilton, O.**—Citizens are urging the extension of the street car service on the East avenue line so as to extend the tracks to the Deerfield pike, via East Hamilton.

**Astoria, Ore.**—Council has granted franchise to the Oregon Coast Railway to use the bridges across Youngs Bay and the Lewis and Clark River in the construction of its electric railroad to Seaside.

**Allentown, Pa.**—The Lehigh Valley Transit Company will construct five miles of city track extensions this spring.—R. P. Stevens, President.

**Columbia, Pa.**—The Columbia & Manor Street Railway Company has made surveys and secured right-of-way for its proposed 14-mile line which connects Columbia and Millersburg; capital, \$225,000. Henry Wertz, Washington Borough, President; H. M. H. Alderman, Lancaster, Pa., Vice-president; E. K. Hershey, Lancaster, Pa., Secretary and Treasurer; J. B. McDivitt, Safe Harbor, Pa., Chief Engineer.

**Elysburg, Pa.**—Warner Mifflin, Bloomsburg, is considering the construction of a trolley line from Paxinos to Elysburg, distance about two miles, if power can be secured from the Shamokin Light Company.

**Honesdale, Pa.**—Council has granted the Lackawaxen Valley Railway a 75-year franchise for a street railway; this railway is the successor to the Honesdale & Hawley Railway, which was formed for the purpose of constructing an electric railway from Seeleville to Hawley, a distance of 11.5 miles.

**Lansdale, Pa.**—The Philadelphia Rapid Transit Company has had surveys made for the construction of an electric railway between Lansdale and Doylestown.

**Meyersdale, Pa.**—Council has granted a franchise to the Pennsylvania & Maryland Street Railway to use three streets in the town and thus continue the line to Berlin.

**Rhea Springs, Tenn.**—M. S. Gibson, who heads the new management of the Rhea Springs Hotel properties, will soon begin the construction of a traction line from Spring City, on the Cincinnati Southern Railroad, to the Rhea Springs Hotel; distance, two miles.

**Austin, Tex.**—Within a few days a committee of citizens will wait on the Commissioners' Court to suggest some feasible plan relative to the construction and operation of a railway track over the new Colorado River bridge when it is completed.

**Beaumont, Tex.**—The stockholders of the local traction company have agreed to order five new cars at once, to add three more during the year, and to inaugurate a system of permanent improvements of the tracks.

**El Paso, Tex.**—Council has passed an ordinance requiring Peacock brakes on all cars used on the Smelter line.

**Galveston, Tex.**—Council has received a petition from the Galveston Electric Company for the right to build double track as far as the city limits on Broadway and on Avenue R.

**Wichita Falls, Tex.**—A 25-year franchise for an electric street railway has been granted to Frank Kell and J. A. Kemp; line will extend to Lake Wichita, where a pleasure resort will be built.

**Seattle, Wash.**—Council has received an ordinance granting a franchise to the Seattle Electric Company over a portion of Third avenue and Pine street.

**Grafton, W. Va.**—The Decker's Creek and Cheat River Railway Company, which is seeking a franchise from the Monongalia County Court, expects to be able to construct a practical trolley line from Morgantown to Cheat River in the vicinity of Ice's ferry and thence to Point Marion; surveys have been completed only to Dellslow, and the route from that point to the river, on the other side of the divide, and thence to Point Marion is not accurately fixed; Cheat River, near the Grant cottage, can be reached by way of Dellslow in nine miles, and from that place to Point Marion, a line can be built in seven miles; entire distance, from Morgantown to Cheat and the Point, 16 miles.

**Chippewa Falls, Wis.**—The Chippewa

Valley Railway, Light and Power Company will soon extend its line from Eau Claire to Menomonie.

**Calgary, Alta., Can.**—A municipal electric street railway system will be constructed here this spring; cost, \$478,000.

**Dunville, Ont., Can.**—The Dunville, Wellandport & Beamsville Electric Railway Company will start construction soon; road will extend from Dunville through Wellandport to Beamsville; distance, 23 miles; capital, \$400,000; James A. Ross, Wellandport; President; W. J. Alkers, Dunville, Secretary; R. T. Gough, Toronto, Chief Engineer.

**Fort Erie, Ont., Can.**—An application will soon be made to the Dominion Parliament for an act to incorporate the Fort Erie and Buffalo Bridge Company; company will erect a bridge across the Niagara River and will construct an electric railway not only across the bridge, but to and from Niagara Falls, Port Colborne, Crystal Beach and other points; cars will be run into Buffalo.

**London, Ont., Can.**—The North Midland Railway Company have completed surveys for this road; construction will begin in the near future; line will connect Lucan, Granton, St. Marys, Stratford and London; length, 45 miles; capital, \$1,000,000.—T. H. Lascombe, London, Secretary; A. E. Welch, London, General Manager.

**Moncton, N. B., Can.**—City will apply at the coming Legislature for power to construct and operate an electric street railway in this city and in the parishes of Moncton and Sheddac, to lease such railway and to grant the right to construct and operate such street railway to any other person or persons upon such terms as shall be approved of by the City Council from time to time and to generate, use, sell or supply electricity for the purposes of such street railway.—John S. McGee, City Clerk.

**Winnipeg, Man., Can.**—Council is considering proposition of allowing the Winnipeg Electric Railway to sell out its interests here; street railway, light and power plants are estimated to be worth from \$15,000,000 to \$20,000,000.—W. Whyte, Vice-president; W. Phillips, General Manager and Chief Engineer, Winnipeg.

## BRIDGES

**Stockton, Cal.**—The Board of Supervisors of San Joaquin County has rejected all bids for two steel drawspan bridges, one 191 feet and one 241 feet, with a 60-foot approach, span steel cylinders for foundation; estimated total cost, \$30,000; new bids will be asked.—F. E. Quail, County Surveyor.

**Atlanta, Ga.**—The city is considering the construction of a bridge at Gray street to connect Jones avenue with the Exposition Cotton Mills district; appropriation, \$66,000.—R. M. Clayton, City Engineer.

**Rock Island, Ill.**—Citizens are urging that proceedings be started over again to see if an adequate plan cannot be prepared for the proposed Seventh Ward sewer system; plan calling for \$47,000 has been turned down by Council.

**Indianapolis, Ind.**—County Auditor Albert Sahm has sold \$100,000 worth of Madison County bridge bonds to the Indiana Trust Company, which offered a premium of \$71.

**Michigan City, Ind.**—City Engineer H. M. Miles is preparing plans for the improvement of the Sixth street bridge, which is said to be badly in need of repairs; improvements consist of concrete abutments on both sides of the harbor.

**Council Bluffs, Ia.**—Because the present city bridge over Indian Creek at Eighth street is so constructed that projections from the underside catch debris in times of high water, a movement is on foot to have the city replace the bridge at this point with a concrete structure.—S. L. Etnyre, City Engineer.

**Manchester, Ia.**—The Boards of Supervisors of Delaware and Jones Counties are considering the construction of a bridge over the Maquoketa River at the meeting point of the two counties.

**Sioux City, Ia.**—Engineer Cassidy, of the Northwestern Railroad, has prepared plans for the Wall street viaduct which call for a viaduct 57 feet wide and two 6-foot sidewalks with a 45-foot roadway.

**Topeka, Kan.**—City Engineer J. P. Rogers has prepared plans for two 50-foot spans at each end of the Melan bridge over the Kansas River.

**Lexington, Ky.**—The Board of Public Works has appropriated \$2,000 for the construction of a viaduct.

**Harrisonburg, La.**—N. R. Cotton, President Police Jury, will receive bids for construction of Bayou Bushley bridge and repair of Jonesville bridge.

**Baltimore, Md.**—The Board of Estimates and Board of Public Improvements have adopted plan of Isham Randolph, Consult-

ing Engineer, Chicago, Ill., for abolishing grade crossings on Baltimore & Ohio Railroad south of Camden Station; plan calls for overhead crossings at Lee, Hamburg, West and Stockholm streets and closing of Barre street crossing; cost to railway company, \$3,000,000 to \$5,000,000; an ordinance will soon be presented to City Council.—B. T. Fendall, City Engineer; J. E. Greiner, Baltimore, Consulting Engineer, Railway Company.

**Chicopee, Mass.**—Mayor W. J. Fuller has recommended the construction of a new bridge over the Chicopee River.

**Omaha, Neb.**—Council has passed third reading an ordinance instructing the Chicago, Burlington & Quincy, Mason City & Fort Dodge and Chicago Great Western to construct a viaduct over Bancroft street at Thirtieth.

**Atlantic City, N. J.**—The Atlantic City & Suburban Railway will build a bridge over Great Egg Harbor Bay, extending from Somers Point to Ocean City; cost, \$250,000.

**Lambertville, N. J.**—The County Board of Freeholders has been petitioned to replace the old wooden-covered bridge over the Alexaiken Creek with a new iron bridge.

**Newark, N. J.**—The Board of Freeholders passed a resolution directing County Engineer Owen to confer with Morris R. Sherrerd, City Surveyor, regarding the advisability of locating the Newark approach of the proposed new bridge to cross Passaic River at Elwood avenue.

**Seneca Falls, N. Y.**—Through the efforts of Assemblyman A. C. Martin a conference will soon be held at Albany between officials of the local trolley company and the State Engineering Department officials relative to the construction of a new bridge over the Seneca and Cayuga Canal at Ovid street in this village.

**West Seneca, N. Y.**—The Town Board has approved the plans of Engineer Getman for a \$30,820 bridge which is to be built over a branch of the Buffalo River and will connect Mineral Spring road and Clinton street.

**Asheville, N. C.**—Pulaski County Commissioners are interested in construction of a bridge to span railway tracks and French Broad River, connecting Asheville and West Asheville; length, 1,000 feet; cost, \$63,000.

**Barberton, O.**—Plans and specifications are being prepared for an iron girder bridge 82 feet long, to be constructed over the railroad tracks at Cornell street; cost, \$70,000.

**Cincinnati, O.**—Construction work will soon begin on the Gilbert avenue viaduct; length, 1,200 feet; cost, about \$283,000; Mayor Markbreit has recommended that an election be held providing for the issue of \$38,000 bonds for the erection of a bridge.

**Cincinnati, O.**—The Cincinnati Traction Company is considering the construction of a bridge over Eastern avenue.—Thomas Elliott, Chief Engineer.

**Cleveland, O.**—A bond issue of a million dollars is asked by W. J. Springborn, Director of Public Service, to provide money for the repair of the Superior and Central viaducts.

**Hamilton, O.**—Two new hoist bridges will be constructed across the M. & E. canal at East High and Heaton streets during this summer; both bridges will be as wide as the respective streets, with at least 40-foot roadways and 10-foot sidewalks; no plans have as yet been prepared, but the estimated cost of the bridges will be from \$10,000 to \$12,000 each; County Commissioners will proceed with preliminary steps as soon as funds are available.

**Guthrie, Okla.**—In all probability the Noble avenue viaduct across the Santa Fe right-of-way, the Denver, Enid & Gulf property, and the Cottonwood River between Second and Fifth streets will be constructed within the near future; Council has adopted the report of the Special Committee appointed to equalize the cost of construction of the viaduct, \$78,000, between the railroad company and the city.

**Tulsa, Okla.**—Bids will be received about March 1 for the construction of a number of steel bridges in Tulsa County.—C. F. Rogers, County Clerk; R. A. Hughes, Engineer.

**Portland, Ore.**—The South Portland Improvement Association is determined to have a high bridge spanning the harbor just above the Inman-Poulsen mills, and to that end is circulating a petition on the initiative and referendum plan, to bring the matter to a vote next June; bridge is to be of the suspension order, supported by huge steel cables on the pattern of the Brooklyn bridge, in New York City; it is to be 4,800 feet, or nearly a mile long, and will be 180 feet above low-water mark of the river; river span will be 800 feet long, and the width of the viaduct is to be 60 feet, or the regulation width of a city street; cost of the proposed structure will be \$1,500,000, to be paid for in the sale of bonds running

thirty years and bearing 4 per cent. interest.

**Allentown, Pa.**—The Lehigh Valley Transit Company, together with the County, will construct a \$125,000 concrete bridge.—R. P. Stevens, President.

**Philadelphia, Pa.**—Council has passed an ordinance authorizing the construction of a bridge on the line of Roberts avenue under the Chestnut Hill branch of the Pennsylvania Railroad; cost, \$40,000.—George R. Stearns, Director Public Works.

**York, Pa.**—City will rebuild the College avenue bridge; cost, about \$75,000.

**Ferguson, S. C.**—The Santee River Cypress Lumber Company will construct bridge over Santee River near Ferguson, but has not decided on plans.

**Calhoun, Tenn.**—McMinn and Bradley Counties are considering the construction of a bridge over Hiawassee River between Calhoun and Charleston; cost, \$30,000.

**Memphis, Tenn.**—The City Club has endorsed the proposed \$1,000,000 bond issue; \$800,000 to be used for bridges, culverts and streets and \$200,000 for a main sewer.

**Memphis, Tenn.**—The County Court has been notified that the North Second street bridge is in a dangerous condition.

**Dallas, Tex.**—City has ordered the construction of a concrete culvert at the Leonard street crossing of the Dallas branch; total cost, \$831.

**Dallas, Tex.**—Citizens are urging the construction of a viaduct across the Trinity so that it will benefit not Oak Cliff and that immediate section alone, but also West Dallas and the entire western section of that county.

**Galveston, Tex.**—The Railway Officials and George E. Mann, Galveston County Judge, have signed the agreement for the construction of the proposed causeway to connect Galveston Island with the mainland; plan includes construction of swing drawbridge; length, 280 feet; reinforced arch bridge 950 feet long on each end of draw; estimated cost, \$1,400,000.

**Granbury, Tex.**—Citizens have voted to issue bridge bonds for the construction of a bridge across the Brazos River.

**Temple, Tex.**—The Gulf, Colorado & Santa Fe Railway will construct viaduct over Adams street; cost, \$25,000.—C. F. W. Felt, Chief Engineer, Galveston.

**Castledale, Utah.**—The Brand and Emery County Commissioners are considering the construction of a bridge over Green River; probable cost, \$35,000.

**Everett, Wash.**—The Board of Public Works has instructed the City Engineer to prepare plans, profiles and estimates for wooden approaches to the new Snohomish bridge.

**Spokane, Wash.**—Council has instructed the Corporation Counsel to prepare ordinances to provide for a new city bond issue of \$1,000,000, half of which will go for new bridges over the Spokane River and the other half for the extension of the city water system and the redemption of outstanding water extension warrants.

**Kaukauna, Wis.**—City is considering construction of a steel bridge across the canal; cost, \$4,000.—M. H. Niesen, Chairman Bridge Committee.

**Fort Erie, Ont., Can.**—An application will soon be made to the Dominion Parliament for an act to incorporate the Fort Erie and Buffalo Bridge Company, with power to construct and operate a highway bridge across the Niagara River to replace the ferry system; present plans call for a low-level bridge, extending from a point within the limits of Fort Erie Village to a point near the foot of Ferry street in Buffalo; company will have power to amalgamate with another to be incorporated for the same purpose by the New York State Legislature and the United States.

#### BIDS RECEIVED AND CONTRACTS AWARDED

**Prescott, Ark.**—The contract for the construction of a bridge across the Little Missouri River has been awarded to the Kansas City Bridge Company, Kansas City, Mo., by the Memphis, Paris & Gulf Railroad Company.—C. C. Henderson, General Manager, Nashville, Ark.

**Colorado Springs, Col.**—The County Commissioners have let the contract for the construction of the new county bridge at Breed Station, across Monument Creek, to C. G. Sheeley, of 219 McPhee Building, Denver, at \$3,000; the bridge will be of steel, with cement floor and concrete reinforcements.

**Jacksonville, Fla.**—The Converse Bridge Company, Chattanooga, Tenn., has been awarded the contract for the Tallyrand steel bridge at about \$5,729.—D. G. Ackery, City Clerk.

**Chicago, Ill.**—The Foundation Company, 115 Broadway, New York City, has been awarded the contract for the sinking of piers to support the bridge across the Chicago drainage canal at Western avenue;

this work consists of the sinking of four pneumatic cylinders to rock; the general contractor is James O. Hayworth.

**Rensselaer, Ind.**—The Rochester Bridge Company, Rochester, Ind., has been awarded the contract by the county for the construction of a two-span steel bridge, 135 feet long and 16 feet wide, across the Kankakee River.—James N. Leatherman, County Auditor.

**Charles City, Ia.**—The Marsh Bridge Company, of Des Moines, has contract to construct a steel concrete bridge over Cedar River at Main street for \$38,474.

**Marshalltown, Ia.**—Close to \$1,000,000 is the amount the Iowa Central Railway Company will spend for its new bridge over the Mississippi River at Keokuk, Ill., the contract for which has just been let to the Union Bridge Construction Company, of Kansas City, at a contract price of \$800,000; the bridge will replace the present structure that was built thirty-two years ago, and is to be finished by January 1, 1910.

**Syracuse, Kan.**—The contract for the construction of the new 720-foot steel bridge across the Arkansas River at this place was let to the Wichita Construction Company for \$21,990; it is to be completed within the next 120 days, and will consist of eight 90-foot spans with a 16-foot roadway.

**Wichita, Kan.**—The Board of County Commissioners awarded contracts January 9 for five bridges; the Wichita Construction Company, Wichita, secured the contract for erecting a bridge across the Arkansas River on Lawrence avenue, and for a 40-foot steel bridge on Twenty-first street, at \$9,650; C. E. Carr secured the contract for three bridges in Rockford, Morton and Delano Townships, at \$4,950.

**Niobrara, Neb.**—C. H. Jones, City, has been awarded the contract for reconstructing the Government bridge over Niobrara River.

**Winston-Salem, N. C.**—The Carolina Engineering Company, Burlington, has been awarded the contract for constructing a steel bridge over Silas Creek at Burke's Mill.

**Youngstown, O.**—Three bids were received for replanking West avenue bridge, as follows: William Renkenberger, \$30.25; Canfield Lumber Company, \$30.50; C. A. McGannahan, \$30.68, for 1,000 feet complete; Board awarded contract to lowest bidder; 41,000 feet in contract.—Will B. Jones, County Auditor.

**Aberdeen, S. D.**—The County Commissioners, January 8, awarded the contract for the construction of four bridges to the A. Y. Bayne Company, of Minneapolis, Minn., at \$4,878.

**Concord, Tenn.**—J. M. Jones, of Knoxville, has been awarded contract for the construction of the bridge over Sinking Creek.

**Gonzales, Tex.**—The County Commissioners have awarded the contract to Austin Brothers, of Dallas, for the construction of an iron bridge over Mule Creek.

**Salt Lake City, Utah.**—The Board of Public Works, January 8, opened bids for the construction of a highway bridge across the Jordan River at North Temple street, and awarded contract to the Minneapolis Steel and Machinery Company, Minneapolis, Minn., according to own plan, single span for \$4,192, to be completed by April; the company also submitted bid for furnishing and erecting riveted steel highway bridge, including foundation and approaches complete, for \$4,492, while James J. Burke & Co., bid \$4,872. Midland Bridge Company \$6,589. Davis & Heuser \$6,800. Perham & Harris \$4,900. V. P. Strange \$4,990. P. J. Moran \$7,452. Silver Brothers Iron Works Company \$8,800. S. Birch & Sons Construction Company \$9,773.—L. C. Kelsey, City Engineer.

**Norfolk, Va.**—The receivers for the Norfolk & Southern Railway have let a contract to the McLean Construction Company for the completion of the five-mile bridge of the road across Albemarle Sound; the bridge will cost \$1,000,000; work was stopped on it when the road went into the hands of the receivers; the bridge will be completed by the first of next year.

#### MISCELLANEOUS

**Berkeley, Cal.**—F. Q. Turner, Superintendent of the Streets, Mayor Francis Ferrier and W. F. McClure, Town Engineer, have been appointed a Committee to confer with the Oakland City Council in regard to co-operating with them in the disposal of garbage.

**Berkeley, Cal.**—Eight sites have been offered the Trustees of this city for possible locations for the new incinerator which the Town Board hopes shortly to be able to build, as the garbage question is daily becoming more acute.

**Oakland, Cal.**—Upon the urgent request of Mayor Mott, for the Board of Public Works, the ordinances appropriating \$3,600 for the establishment and equipment of a

city museum has been recommended passed to print by the Finance Committee.

**Ocean Park, Cal.**—The City Trustees are considering plans for an extension to the Pier avenue wharf.

**San Jose, Cal.**—As the three garbage companies are without a dumping ground, the only relief that seems feasible is the immediate erection of a municipal crematory.

**Rockville, Conn.**—City has not yet let contract for the construction of a garbage crematory.—David Horgan, Chairman Board of Public Works; J. N. Keeney, City Clerk.

**Lewes, Del.**—The Zwaanendaal Club will present a petition to the Legislature for the transformation of an unhealthy pond into a beautiful city park.

**Washington, D. C.**—Consular Assistant Archibald Durman, of Berlin, has translated from "Nachrichten fur Handel und Industrie," the following notices of various public works upon which bids are asked for: (1) Contract will be let February 4, 1909, for the supply of dredging machine for the River Plata del Judio, Argentina. Details may be had from the Dirección General de Obras Hidráulicas, Sección Maquinaria y Materiales, Buenos Aires. (2) The city administration of Santiago, Chile, has requested permission of the state government to give credit to the amount of 2,500,000 pesos (gold peso = 36.5 cents) for the construction of the Theater Victoria. According to the plans marble in all shades will be used in large quantities. (3) A telephone switchboard is to be bought for the William Street Central in Sydney, New South Wales. The contract will be granted April 28, 1909, at the office of the Deputy Postmaster-General, Sydney. (4) Bids on the furnishing of various provisions and office supplies to the directors of the Bengal-Nagpur Railway, General Offices, Garden Reach, Calcutta, India, will be opened March 31, 1909. Book containing conditions may be had for 2 rupees, upon application to the railway offices. (5) A recent issue of the "Cape Times" states that the Common Council of Port Elizabeth, Cape Colony, will issue bonds approximating \$125,000 for the improvement of the city electric works.—Address No. 2987, Bureau of Manufactures.

**Jacksonville, Fla.**—J. Q. Dickinson, 1217 Ionia street, will let contract for manufacturing power ditching machine; wood and metal construction; operated by gas engine or dynamo; plans and specifications furnished on application.

**Athens, Ga.**—The Committee of the Police and Fire Departments will recommend the purchasing of spring suits for the police and firemen.

**Athens, Ga.**—A movement has been started by the Mayor and Council looking toward the creating of a fund for the purchasing of lands and providing a park for this city, which has been needed for these many years.

**Atlanta, Ga.**—City will vote on a \$2,000,000 municipal bond issue.

**River Forest, Ill.**—The village will construct a village hall, two-story, 65 x 75. Architects, Postle & Mahler, Chicago. Mr. Cloch, President.

**Des Moines, Ia.**—Council members are considering a special appropriation for the maintenance of an automobile service and the purchase of a new emergency outfit.

**Sioux City, Ia.**—Bids will be received about February 1 for diverting Bacon and Perry Creeks and constructing conduits of reinforced concrete; cost, \$100,000.—G. Y. Skeels, City Engineer.

**Lexington, Ky.**—The Board of Public Works has recommended the purchase of 40 acres of land adjoining the jail property upon which to open a new quarry.

**Lexington, Ky.**—The Board of Public Works has appropriated \$11,375 for the sweeping and cleaning of streets.

**Opelousas, La.**—The Committee appointed by the Board of Aldermen to draft a suitable ordinance to take the sense of the property taxpayers on the proposition to issue bonds for certain municipal improvements has made a report which has not been made public as yet, but it is understood to provide for separate submission of the question as to drainage, school, sewerage and improvement of the electric light plant; total issue is proposed to be \$80,000.

**Boston, Mass.**—The Board of Aldermen has adopted an ordinance that the Legislature be petitioned for the right for the city of Boston to appropriate a sum of money outside the debt limit for the purchase of a site at Park square and the erection thereon of a new City Hall.

**Lowell, Mass.**—City has received a petition for a playground in the Highlands.

**Pittsfield, Mass.**—Council has received a communication from K. B. Miller, offering to sell Abbott Park or any part of it to the city for park purposes at the price he paid for it.

**Duluth, Minn.**—Health Commissioner Dr.

Patton has recommended the institution of a system of municipal collection of garbage.

**St. Paul, Minn.**—A bill authorizing the sale of \$250,000 in bonds for the enlargement of the City Hall and Court House will be introduced in the Legislature by the Ramsey County delegation.

**Boonton, N. J.**—Mayor C. J. Kapp has recommended the numbering of houses, municipal ownership of water plant, the improving of streets and street lighting.

**Glen Ridge, N. J.**—Citizens will vote February 24 on \$5,000 bond issue for the purchase of park lands.

**Jersey City, N. J.**—The Shade Tree Commission has retained Landscape Architect John T. Withers, 1 Montgomery street, to lay out designs for the improvement of Bayside, Mary Benson and the L. J. Gordon parks.

**Lambertville, N. J.**—Council has ordered the purchase of badges, dark lanterns, revolvers and hand-cuffs.

**Newark, N. J.**—Mayor Jacob Haussling has recommended generous appropriations for playgrounds, public baths and comfort stations.

**Perth Amboy, N. J.**—Council has passed a resolution that a special committee be appointed to add six flashlight and bell stations to the police call system; cost not to exceed \$300 each.

**Verona, N. J.**—Mayor Robert Palm has recommended the erection of a Town Hall, the installation of a sewerage system, the grading of streets and adequate fire protection.

**Elmira, N. Y.**—City will present a bill to the Legislature asking for an appropriation for the necessary repair of the dikes along the Chemung River.

**New York, N. Y.**—The Police Department will erect a five-story 81 x 100 building at a cost of \$165,000. Architect, E. P. Casey.

**New York, N. Y.**—Street Commissioner W. H. Edwards has asked the Board of Estimate for authority to purchase fifty snow plows at once; cost, \$200 each; matter has been referred to Comptroller Metz.

**Schenectady, N. Y.**—Chief of Police Jas. W. Rynex has recommended the purchase of two new motorcycles to replace those in service and the purchase of 25 Colt police revolvers.

**Schenectady, N. Y.**—Commissioner of Public Works C. B. Pond has recommended the purchase of three high-pressure street flushing machines of the type in use in New York City.

**Schenectady, N. Y.**—Mayor Van Voast has announced that a plan is on foot whereby the ashes collected about the city will be utilized to fill in a portion of Cotton Factory Hollow for a roadway; it is planned to build retaining walls of concrete and dump all of the city garbage there, the garbage to be liberally mixed with sand.

**Syracuse, N. Y.**—Commissioner of Public Works F. M. Westcott has recommended the purchase of a new device known as a "Squeegee"; cost, \$1,200 to \$1,500.

**Troy, N. Y.**—Superintendent of Parks W. H. Cahill has recommended the repairing of the fountain in the Twelfth street park, the erection of a building for implements and tools and the laying of new concrete walks.

**Bellefontaine, O.**—County Surveyor Chas. M. Richey is estimating the cost of straightening and deepening the channel of the Miami River from the Lewiston reservoir to Quincy by dredging; work will cost about \$24,000.

**Cleveland, O.**—City is hoping that Legislature will pass the Langdon bill to amend the Longworth act and raise the present limit of city indebtedness; \$6,175,000 is wanted for public works; of this amount \$1,000,000 is wanted for parks; \$250,000 each for the City and Tuberculosis hospitals; \$1,500,000 for the new City Hall; \$150,000 for the West Side Market; \$100,000 for river dredging, and \$1,000,000 for grade elimination.

**Dayton, O.**—Council has passed ordinance for issue of \$35,000 bonds to erect the Wayne avenue market house; also received ordinances appropriating \$51,000 to reprop North Dayton levee and ordering \$30,000 bonds to be sold for purpose of improving McKinley Park.

**Hamilton, O.**—Council has passed an ordinance appropriating \$2,500; money to be placed at the disposition of the Park Commission for the purpose, through Landscape Architect G. E. Kessler, of preparing and presenting plans for a municipal park system.

**Hamilton, O.**—Council has passed an ordinance determining to proceed with the construction of sufficient levees along the Miami River to protect the city from flood dangers; engineer will be employed to make surveys.—City Civil Engineer L. A. Dillon; Mayor Straub.

**Warren, O.**—City Sealer of Weights and Measures A. I. Powers is urging that Council provide him with a necessary and complete outfit of utensils; cost, \$350; Council has already appropriated \$250.

**Portland, Ore.**—Mayor Lane has recommended the construction of a new City Hall and the erection of a garbage incinerator.

**Johnstown, Pa.**—Mayor Alex Wilson has recommended the transforming of River Side Park into a playground for children.

**Paoli, Pa.**—The Pennsylvania Railroad has planned to move the present railway station at Paoli 1,500 feet eastward and lay out a public park extending from Lancaster pike to the railroad.

**Philadelphia, Pa.**—Council has passed an ordinance to purchase a lot bounded by Fifty-fifth, Christian, Fifty-sixth and Webster streets for a public park and playground.—J. E. Reyburn, Mayor.

**Pittsburg, Pa.**—A request has been made to the Sub-Committee on Appropriations by the Flood Commission for an appropriation of \$25,000 to be expended through the Director of the Department of Public Works, in improving the flooded districts of the city.

**Bristol, Tenn.**—W. P. R. Pember is considering purchase of cast-iron 2 to 6-inch pipe.

**Nashville, Tenn.**—A special committee of recommended the installation of a police telegraph and telephone system and the erection of substations.

**Nashville, Tenn.**—A special committee of Council has recommended for passage a resolution calling for a conversion into city parks and playgrounds for children of certain property owned by the city.

**Longview, Tex.**—The Longview Sanitary Company will purchase trenching machine or excavator.

**Richmond, Va.**—The Subcommittee on Wharves has prepared plans, which were presented to Committee on Improvement on James River, for placing bulkheads or piles along newly-acquired water front of city from mouth of Gillie's Creek to Nicholson street; frontage is between 800 and 900 feet, which, after filling in behind bulkheads with mud and sand from river, will be made into wharf; cost, \$25,000.—C. E. Boling, City Engineer.

**Ellensburg, Wash.**—Council has had plans prepared and will soon advertise for bids for the erection of a model City Hall.

**Seattle, Wash.**—City is considering establishment of a park in close proximity to King County Court House.—Assistant Secretary, Roland Cotterill.

**Wellsburg, W. Va.**—The Board of Health has recommended the establishment of a crematory.

**Wheeling, W. Va.**—City has sold \$695,000 improvement bonds to Weil, Roth & Co., of Cincinnati.

**Kenosha, Wis.**—City is open for propositions for furnishing electric street lighting; can grant rights for electric commercial lighting for stores and dwellings, also power for factories; also propositions to build a municipal plant for street lighting; population, 25,000.—Peter Pirsch, Chairman of Committee.

## BIDS RECEIVED AND CONTRACTS AWARDED

**Fort Morgan, Ala.**—Christie & Lowe, of New Orleans, La., have been awarded the contract for the construction of a sea wall at their bid of \$250,000; this firm is now engaged in the construction of a sea wall 2,000 feet long at Fort Gaines, Ga.; the latter will be completed in about four months and the Fort Morgan work will be started within thirty days.

**San Bernardino, Cal.**—The Pacific States Telephone and Telegraph Company has been authorized to install a police patrol box system, seven boxes, at a cost of \$60 and \$11 per month for maintenance, being the terms of the agreement; one will be placed in the West End and another in the tenderloin, while the rest will be distributed in the business section.

**New Orleans, La.**—Inspector William J. O'Connor, of the Police Department, has placed with A. M. Cooke, of the Automobile Company, orders for an up-to-date motor car and six motor cycles; the machines will be as fine as those used in New York, Chicago, St. Louis, Cincinnati and the other large cities of the North and West, and will be so constructed as to meet the conditions in New Orleans' streets and some of the roads on the outskirts of the city.

**Boston, Mass.**—Bids were received January 20, for the erection and operation on the property of the city of Boston at Fort Hill wharf, a plant for the disposal by incineration of parts of the combustible waste, to be separated from city refuse, delivered at the plant, the approximate amounts of refuse to be treated, based on the collections of the past year, being: Paper, 12,592 tons; mixed refuse (garbage, ashes and paper), 42,982 tons; mixed refuse (ashes and paper), 57,050 tons; dry weather street sweepings, 2,500 tons. Alternate proposals were permitted, however, on the

basis of disposal of refuse as above indicated, the contractor to erect a dumping station at Fort Hill wharf and incinerating plant in a vacant building near the pumping station in Dorchester, the screened ashes and clinkers to be disposed of by the contractor. The Boston Sanitary Disposal Company agreed to care for any amount of garbage up to 120,000 tons per year for \$5,000 per year. For all amounts above that figure they ask 15 cents per ton. It also agrees to construct its own plant and at the end of three years to sell it to the city for \$40,000, or give the city the privilege of continuing the contract for five years more.

The American Refuse Disposal Company of New York, which is connected with the firm of Lewis & Kitchen, of Chicago, asks \$114,000 for caring for all garbage up to the amount of 120,000 tons per year, and 93 cents per ton for all in excess of that amount. This company agrees to build its own plant and to sell it to the city at the end of the three years' contract for \$332,000.

Both companies offer to build the plants at the Fort Hill wharf.

On the second proposition the American Refuse Disposal Company offers to build the incinerating plant at Calf Pasture and the receiving plant at the Fort Hill wharf. For this it agrees to take care of all amounts up to 120,000 tons for \$105,000 per year, to take the excess of that amount for 86 cents per ton, and to sell the plants to the city at the end of the contract for \$354,000. The bids were taken under consideration and decision reserved.—Guy C. Emerson, Superintendent of Streets.

**Lowell, Mass.**—Bids for various articles were opened before Mayor Brown in the Purchasing Agent's office, January 14. Bids for cloth for uniforms for the police and firemen, the first in the history of the departments, were among those opened, and the contract went to the M. Marks Company. The bids called for Slater cloth, styles 618 and 382. The M. Marks Company bid \$2 and \$2.35 a yard; Talbot & Company bid \$2.05 and \$2.35 a yard and Roy & O'Heir \$2.05 and \$2.40.

A contract for 500 pounds of butterine went to Swift & Co., at 11½ cents a pound. The Omaha Packing Company bid 12 and 14½; J. J. Donovan bid 14½, and John F. Saunders bid 12½.

A contract for 25 barrels of rolled oats went to T. J. McDonald, and a contract for varlous drugs went to F. & E. Bailey. Their bid was \$68.50, and F. H. Butler & Co. bid \$82.50.

**Somersworth, N. H.**—The contract for removing the brown tail and gypsy moth nests from city trees has been given to H. M. Brooks of Portsmouth, the lowest bidder, at \$250; the highest bid was \$675.

**Long Branch, N. J.**—Bids for cleaning the asphalt streets were opened by the City Council and awarding of the contract deferred temporarily; in the meantime the streets will be cleaned under the direction of the Street Committee, the two-year contract held by Thomas L. Worthley having expired on January 1; the bids ranged from \$2,200 to \$2,650 per year; the contract is for two years. Following are the bids: Raymond E. Britton, \$2,650; Michael Angello Capasso, \$2,400; John Colyard, \$2,250; George Frazee, \$2,400; William T. Brown and William Bodine, \$2,490; J. William Jones, \$2,500; Rocco Dillione, \$2,250; Henry A. Cioffi, \$2,200; Mr. Cioffi, the lowest bidder, conducts a shoe shop in the Patten Bldg. in Third avenue and is one of the leaders among the Italian citizens.

**Buffalo, N. Y.**—For remodeling three-story police station on Franklin street, low bidders follow: Masonry and cut stone work, Wm. C. Sandell & Co., \$7,546; carpentry, painting, glazing, hardware, Jos. G. Bellanca, \$5,870; roofing, metal work, steel ceilings, etc., Philip Christmann, Jr., \$1,560; heating and ventilating, Frontier Plumbing & Heating Company, \$3,000; plumbing, gas fitting, etc., F. A. Bradley, \$3,992.—Architect, Howard L. Beck, 11 Erie County Bank Building; owner, city; Col. F. G. Ward, Commissioner of Public Works.

**Bucyrus, O.**—G. L. Stiefel, of Galion, has been awarded the contract of hauling and stringing fifty miles of pipe for the Tide Water Pipe Line Company; the pipe line runs parallel to the recently constructed line of the Ohio Pipe Line Company, which passed through the southern part of Crawford County. This line runs some distance south of the recently completed line.

**Steubenville, O.**—The Board of Public Service has awarded the contract for garbage removal and disposal for the present year to Howard & Smith, city.

**Tulsa, Okla.**—Bids were opened for the construction of retaining wall on the north side of stand pipe hill, the bid being awarded to J. K. Roach, \$198 being the contract price.

**Nashville, Tenn.**—Bids were opened, January 14, by the Board of Public Works on 3,975 tin tags to be used by the city Rev-

enue Office in the issue of wagons and carriage license for the year beginning April 1. G. C. Dury was the lowest bidder, proposing to furnish the lot at \$228. All the offers came from local bidders. The bidding was as follows: W. D. Given, \$298.15; Waldo McEwen, \$262.29; National Advertising Company, \$268.375; G. C. Dury & Co., \$228; C. A. Bellamy, \$419.

**Galveston, Tex.**—The signing of the contract for filling a large area south of Broadway, 43d to 53d street, embracing 100 city blocks, was completed January 13, when H. M. Truehart signed the contract as President of the Denver Resurvey Company; the raising to grade of this large area, together with other sections reclaimed by filling to grade, makes available enough vacant land for the city to accommodate double its present population.

The contract for refilling made with the North American Dredging Company embraces the filling of all the lowlands south of Broadway as far west as 53d street. This includes filling and reclaiming McKinley's bayou to about the same grade as Avenue S is at present. The bayou proper begins at the Fort Crockett reservation and extends north to Avenue P½, where it spreads out and into the marsh. Work on this contract has just been instituted; the placing of this million yards of filling means that Galveston will be absolutely free of marsh land, mud holes and mosquito-breeding sloughs and ponds from the extreme eastern end all the way to 53d street. With the placing of the million yards for this contract there will have been placed for grade raising purposes in the city practically 14,500,000 cubic yards of clean sand. With the completion of the Avenue M½ drain, all that section of the city south of Broadway will have been provided with drainage facilities.

**Portsmouth, Va.**—Board of Aldermen has adopted unanimously recommendation of the Finance and Street Committee for the purchase of the Decarie Incinerator plant at cost of \$21,000. Mr. Montague, Chairman of the Street Committee, said the reason the Committee recommended the highest priced plant was because it was the most up-to-date and the most economical plant of all that was presented to that body for consideration and that it was less liable to get out of order; he said the committee was satisfied it could be run much cheaper than the price now being paid for the removal of dirt and garbage from the city; the cost is about one-third higher than the other plants offered.

**Tacoma, Wash.**—H. S. Huson and Arvid Rydstrom, of Tacoma, have been awarded the contract for the 8,647-foot tunnel under the business section of Tacoma, to be constructed by the Oregon & Washington Railroad at a cost of about \$1,000,000.

## PATENT CLAIMS

**909,234. Deep-Boring Apparatus.** Wilhelm Schott, Erkelenz, Germany, assignor to The Firm of Internationale Bohr-gesellschaft, A. G., Erkelenz, Germany. Serial No. 370,481.

A deep-boring apparatus comprising in combination with a boring tool a pivoted beam carrying said tool, means for reciprocating the pivot of said beam, a pivoted balancing beam resiliently connected to said boring beam.

**909,499. Road Construction.** Frederick F. Williamson and Daniel Brennan, Jr., New York, N. Y., assignors to Sicilian Asphalt Paving Co., New York, N. Y., a Corporation of New York. Serial No. 430,463.

In a road or the like, an under layer of comparatively large stones in supporting contact and set close together at the top of the layer parallel with the contour of the finished road, and an upper layer of smaller stones, the spaces between the stones of both layers and between the layers being filled with a soft bituminous binder of identical quality extending within both layers, the stones in each layer being classified so that the larger stones are near the top.

**909,700. Excavator.** Winfield S. Smith, Forest, Ohio. Serial No. 448,977.

An excavating apparatus comprising a platform, a standard rising therefrom, conveyer frames mounted in suitable guideways upon said standard, means for raising and lowering the frame, an endless conveyer chain upon said frame, buckets secured to said endless conveyer, a hinged bottom to each bucket, and trip mechanism for actuating the latter, as set forth.

**909,794. Aerial Ropeway.** Cezary W. Henry, Detroit, Mich. Serial No. 463,688.

An aerial tramway apparatus comprising tracks, a truck having grooved sheaves mounted upon the axles thereof, and resting upon said tracks, a car suspended from said truck, a brake mechanism carried by the truck and adapted to frictionally engage said tracks, hangers pivotally

connected to the car, a longitudinally movable rack bar, sleeves mounted upon said rack bar and through which said hangers are adapted to have longitudinal movements, pulleys upon the truck, drums, shafts upon which the same are mounted, pinion wheels fixed to said shafts and in mesh with said rack bars, and a cable connected to said hangers and passing about said pulleys and drums, as set forth.

**909,865. Street-Sweeping Machine.** Charles H. Butler, Oakland, Cal. Serial No. 292,004.

In a street cleaning apparatus, the combination of a wheeled-vehicle frame, a casing therefor, pivotal connections between the casing and frame, resilient connections between the frame and casing to cushion the movement of the casing independent of said frame, and means for operating the brush.

**909,982. Excavating and Loading Machine.** Josephus Bingaman, Garnett, Kan., assignor of one-half to George W. Hunley, Garnett, Kan. Serial No. 440,030.

The combination of a wheeled frame having draft devices at opposite sides thereof for attachment of draft animals, a tilting beam pivoted on the frame and having a lifting and dumping implement at the front end thereof, means to operate the beam, and means to operate the implement.

**910,055. Excavating Apparatus.** Dayton H. Gilson, Rushville, Ind. Serial No. 440,987.

In an excavating apparatus, the combination with a supporting frame, and a scoop pivotally connected at its forward open end portion to said frame of a depending latch pivotally connected to said frame, and a catch situated at the rear end of said scoop to be engaged by said latch to support the end of said scoop, a ball adjustably secured to said scoop and adapted to project, at is forward end, beyond the open end portion of said scoop, a hauling rope connected to the forward end of said ball, whereby, when the scoop is unlatched to depend from its pivotal center, said hauling rope is operated to swing said scoop into position to be engaged by said latching means.

**910,256. Ditching-Machine.** Dennis J. Wren, Indianapolis, Ind. Mary E. Wren, administratrix of said Dennis J. Wren, deceased. Serial No. 410,741.

In combination with a carrier, of a boom having its one end adjustably secured to the carrier, means for adjusting said boom with respect to the carrier, a scoop carried by the boom, a support for the boom having inclined sides.

**910,321. Street-Sweeper.** Otto Schumann, Philadelphia, Pa. Serial No. 422,199.

In a street sweeper a rotary brush, a rotary collector having peripheral buckets, openings from said buckets into the interior of the collector, and a suspended receiving tray located within said collector and adapted to be removed therefrom.

**910,327. Water Softening and Purifying Apparatus.** Harry H. Sutro, New York, N. Y., and Levil M. Booth, Plainfield, N. J. Serial No. 214,441.

In an apparatus for softening and purifying water, the combination with a hollow upright cylinder, divided horizontally by a partition into separate compartments, one of which serves as a settling tank and the other as a lime water tank, of a re-action tank contained in said cylinder, means for conducting water and lime into the lime-water tank, means for conducting lime water therefrom to the re-action tank, a chemical solution tank, means for conducting solution therefrom to the re-action tank, and means for conducting raw water to the re-action tank and means for conducting treated water from the re-action tank to the bottom of the settling tank and means for discharging purified water from the upper part of the settling chamber, substantially as described.

**910,384. Road-Grader.** Levi Ireland, Fredericktown, Ohio. Serial No. 423,754.

In a road grader the combination with a frame, of a blade connected thereto, hinges connected to the blade and means for operating the hinges whereby the position of the blade can be reversed.

**910,407. Apparatus for Treating Garbage.** Albro J. Morse, Baltimore, Md. Serial No. 257,517.

In an apparatus for treating material, the combination with a jacketed tank, of means for superheating steam at low pressure and introducing the same in the jacket of the tank, means for rotating the tank to agitate the material therein and means for withdrawing from the tank the moisture given off by the material.

**910,421. Interlocking Construction for Docks, Piers, Jetty, Building Foundations, etc.** Henry W. Schlueter, Denver, Colo., assignor, by mesne assignments, to Interlocking Tube Company, a corporation of Illinois. Serial No. 413,731.

Pipes or tubes provided with interlocking tongues and grooves, the tongues being hollow and in communication with their respective pipes and the grooves being internally located.

## MUNICIPAL APPLIANCES

### Preventing Hydrants From Freezing

A METHOD of preventing the freezing of hydrants has been devised by A. A. Cowles, of the Ansonia Brass and Copper Company, and Walter G. Clark, an electrical engineer, and the apparatus to be used in connection therewith is now being placed upon the market by the Hydrant Protective

in drug stores for making soda water. Each cylinder contains enough gas to test 100 hydrants. It is provided with a reducing valve, the necessary gauges, hose and connections, so that the operation merely involves attaching the apparatus and opening the valve, after which the hydrant is freed of water in from 15 to 30 seconds.

For use in emptying hydrants after a fire where steam fire engines are used, a small air compressor is attached to the fire engine in such a manner that it may be thrown into service only after the engine had ceased to pump water, when compressed air is introduced to the hydrant for the purpose above described. If hand pumping outfits are preferred, complete duplex hand-pumping equipments are supplied with hose, valves, connections, etc., in place of the carbon dioxide sets. Instead of an air compressor on the fire engine, the carbon dioxide set may be attached to the hose wagon.

It is seen that it is unnecessary to make any change in the hydrants, drill any holes, or make any attachments to the hydrant except during the time the apparatus is in use; and there is supplied with each outfit a special cap to the hose nozzle containing a check valve, which cap is removed when the hydrant has been freed of water and the ordinary cap is replaced.

## TRADE NOTES

**Cast-Iron Pipe.**—Chicago: Present development of business is slow but pipe makers think the demand will soon become general. Railroads are expected to take a large tonnage this year. Birmingham: Market active, with prices stiffening. Enquiries are brisk. New York: Demand is light in this immediate vicinity. Prices are weak, as founders seem a little more anxious to secure business. Quotations: Car-load lots, 6-inch, \$24.

**Lead.**—Market dull and unchanged. Metal Exchange quotes 4.15 to 4.20c.; American Smelting and Refining Co., 4.20c. St. Louis: Market dull at 4 and 4.05c. London: Soft Spanish, £13 2s. 6d.; soft English, £13 10s. 8d.

**Lighting Plant.**—The lighting plant of the Citizens' Electric Service Company, Bath, N. Y., work on which has been suspended on account of financial and other difficulties, is about to be completed. M. J. Burke, Buffalo, N. Y., who has been the contractor in charge of the work, has now guaranteed the completion of the power house and his time has been extended four months.

**Fire Hose.**—The Eureka Fire Hose Manufacturing Company has just received contracts from Buffalo, N. Y., for 5,000 feet of 2½-inch eureka hose, and 1,000 feet of 3½-inch eureka hose; from Jersey City, N. J., 1,950 feet of 2½-inch eureka hose; all four-ply, manufactured under the new improvement for high-pressure pipe-lines.

**Model Sewage Plant.**—The Woodstown Sewer Company, of Woodstown, N. J., has received word from the State Board of Health that the local plant is so satisfactory that it will be recommended as a pattern for other towns where a sewage system will have to be adopted. The company has elected Clark Flitcraft president, C. F. Pancost secretary, C. E. Horner treasurer.

**Asphalt Manufacturers.**—An upward tendency marked the asphalt market in the United States during the past year, according to P. W. Henry, Secretary of the Independent Asphalt Association, which met at Washington, D. C., January 19. A new kind of country road, a combination of asphalt and macadam, was proposed by Amzi L. Barber. Macadam highway with a strip of asphalt in the middle, he said, was the hope of the future, the only highway to stand the heavier loads, and the ever increasing automobile traffic. The various aspects of the asphalt industry were discussed by other speakers and the association concluded its work after re-electing the following officers: W. V. Cranford, president, Brooklyn; P. R. Quinlan, vice-president, Rochester; Hugo Reid, New York, treasurer, and P. W. Henry, New York, secretary.

**Change of Ownership.**—A majority of the stock of the Fitchburg Gas and Electric Light Co., Fitchburg, Mass., has been acquired by the Tenney-Royce syndicate. The company controls the entire output of gas and electricity in Fitchburg. The new combine consists of Charles H. Tenney, of Hartford, Conn., and Springfield; Frederick P. Royce, of Dedham, and Albert B. Tenney, of Everett. Charles H. Tenney figured most prominently in the deal and is said to be representing the syndicate which is furnishing the money. These men with others control the Springfield Gas Light Company, the Malden and Melrose Gas Light companies, the Suburban Electric Company of Revere, the Malden Electric Company, the Haverhill Electric Company and the Concord Electric Company, of Concord, N. H.

**Recording Outages.**—The Rochester Railway and Light Company uses a chart of the city tacked to a board for the purpose of recording just how many lights are out during the month, and the object of this board is to call to the attention of the trimmers, who patrol the streets and take care of the lamps, to the number of lights that have been reported out in their districts. There are six trimmers, and each has a section of the city to patrol. Two trips are made each night. At the end of each month the chart is brought out and little pins with various colored heads are stuck all over the chart at the street corners where the lights have been reported out. By this system each trimmer is shown just how his district shows up in the monthly record. Of course, in the case of a circuit burning out, the trimmers are helpless until the break is repaired and the number of lights out are not charged to them. If a light is reported out on just one night, the street corner on the chart is marked with a red topped pin; two nights, a blue pin; three nights, successively, a yellow pin; three nights, not successively, a plaid pin. During December the chart showed two yellow pins, 70 blue pins, 25 plaid pins and the remaining red pins. Four circuits were out during the month, two caused by the burning out of the transformer at No. 3 Station—an accident which has happened only once in five years.

**Leadite.**—The Leadite Company, Philadelphia, Pa., has announced its removal into new offices in the Land Title Building, Broad and Chestnut streets.

**Rubber Tires.**—The Firestone Tire and Rubber Co. has opened a branch at 957 S. Main street, Los Angeles, Cal.



EMPTYING HYDRANT BY COMPRESSED GAS

System of 135 Broadway, New York City. Their method is, in brief, to force air or gas into the hydrant, at the same time opening the valve into the main, and by maintaining the pressure of air in the hydrant somewhat greater than that of the water in the main the water in the hydrant is forced back through the valve into the main. The valve is then closed, leaving the hydrant free from water. A pressure gauge is attached to the hydrant connection near the hydrant, and the pressure indicated in this falls when the hydrant is free of water. If there is a drip valve in the fire hydrant, this opens when the valve is closed and the escape through this of the air which is still in the hydrant removes the last trace of water along with it. In forcing the water back into the main through the slightly-opened valve, the valve seat is cleared of chips, mud or anything which might prevent the proper closing of the valve. If hydrants are located where ground water stands above the drip valve outlet, which water might work up into the hydrant and freeze there, it is advisable to plug the drip valve entirely; and in setting new hydrants in such ground it would be better to use those containing no drip, thus making a saving in cost. In many cities it is the custom to connect drip valves with the sewer, and this cost also may be saved. This system makes it possible to determine whether hydrants are entirely free of water after a fire or when being inspected, and also that the bottom valve is tightly shut; and since the time required to force the water out is but a fraction of a minute, the formation of a shell of ice inside the barrel of the hydrant cannot occur even during the coldest weather.

The introduction of air under pressure could be secured by means of hand-operated air pumps; but an objection to this is the possibility that the operator might become tired before he had driven the water entirely out of the hydrant. Instead of hand-operated pumps, therefore, steel cylinders are used mounted on a small cart and filled with liquefied carbon dioxide gas, this gas being the same as is used

## PERSONALS

**ACKLEY**, GEO. B., Hackettstown, N. J., has been appointed Chief Engineer of the Fire Department.

**AVERETT**, A. A., has been appointed Second Assistant City Engineer of Charleston, S. C.

**BAYLESS**, W. K., Lexington, Ky., has been appointed Alderman by Mayor John Skain to succeed Rudolph Harting, resigned; he has just finished serving the unexpired term of Alderman W. R. Cockrell, who was named as Delinquent Tax Collector.

**BELDING**, CLAIRE M., Assistant City Engineer of Cleveland, O., in charge of harbor, wharf and river improvements, has resigned to take charge of canal repair work being done by the State.

**CHASE**, F. H., City Physician of Chelsea, Mass., has been relieved from duties as a member of the Board of Health of the city by the Board of Control, which changed the city ordinances for the purpose, it being the belief that the City Physician has ample public work otherwise; Dr. Edward H. Johnson has been named as a member of the Board, vice Chase, and Ernest F. Johnson has been named to succeed David A. Lourie, resigned.

**CLARY**, EDWARD, Harlem, Ga., has been elected Mayor over W. A. Winn by six votes, and H. S. Paschal, J. P. McCord, J. J. Fulmer, C. D. Bailey and F. J. Watson, Councilmen.

**COOKE**, CHAS. D., Paterson, N. J., has been appointed member of the Board of Works, succeeding Chas. D. McKelvey.

**CORWIN**, DR. THEO. W., Newark, N. J., has been appointed a member of the Board of Health. Other new members named are: Dr. Frank E. Meeker, Chas. W. Baker and James A. Rowe, succeeding Dr. Wm. S. Drisbrow, Dr. Wm. R. Kent, Frank M. Schultz and I. Rolfe Denman. Francis J. McTague has been appointed a Playground Commissioner, succeeding Wm. J. McKiernan.

**COTTEN**, E. H., Summit, Miss., has been appointed by Mayor J. B. Holden as Superintendent of Water Works and Electric Light.

**CURTIN**, JOHN J., Superintendent of Streets of Taunton, Mass., was defeated for re-election by Joel A. Thayer, after three joint conventions by the City Council.

**DALRYMPLE**, FRANCIS W., City Engineer of Bayonne, N. J., has been reappointed.

**EDWARDS**, JOHN H., Fire Commissioner of North Tonawanda, N. Y., for the last five years, has handed his resignation to Mayor Louis T. Fick.

**EVANS**, WM. E., Monticello, Fla., has been elected Mayor.

**FARR**, DR. IRVING, of Holyoke, Mass., has been elected City Physician. Geo. Barnett was elected President of the Board of Aldermen.

**FARR**, LORIN, first Mayor of Ogden, Utah, and a pioneer settler of Utah, who was one of the principal contractors in the building of the Central Pacific Railroad, was drowned at Utah Hot Springs while bathing recently, and is mourned by seven wives and three hundred children, grandchildren and great-grandchildren.

**FERGUSON**, WILLIAM A., Beverly, Mass., has been appointed Chief of Police by Mayor Trowt, and confirmed by the Board of Aldermen.

**GRUBER**, J. H., Smithville, Tex., has been elected Chief of the Fire Department.

**HACKETT**, GEO. W., Utica, N. Y., has been appointed Deputy City Engineer.

**HEAVEY**, JOHN J., Jersey City, N. J., President of the Street and Water Board, has been re-elected; John E. Carlock and Geo. Brackner are new members of the Board.

**STILES**, FRED. H., Street Commissioner of Owego, N. Y., has been appointed Superintendent of the Owego Water Works Company.

**STRATTON**, MATTHIAS, and Frank Lagay, Newark, N. J., have been appointed Fire Commissioners succeeding Edw. E. Gничtel and Charles Logan.

**SULLIVAN**, MICHAEL J., Chicopee, Mass., has been elected President of the Board of Aldermen.

**WARD**, C. C., Wenatchee, Wash., has been appointed City Engineer.

**WEBBER**, WINSLOW L., City Engineer of Gloucester, Mass., has been re-elected for the twenty-first consecutive year.

**WEIMAR**, WILLIAM O., Buffalo, N. Y., has been elected President of the Board of Aldermen.

**WHITNEY**, HARRIE L., City Engineer of Beverly, Mass., has been reappointed by Mayor Froot.

**WILSON**, W. M., formerly City Engineer of Gadsden, Ala., has been appointed Assistant Engineer of the Board of Public Works of Mobile Ala.

**YOUNG**, JOHN T., Philadelphia, Pa., has been appointed a District Engineer of the Fire Department, succeeding the late Samuel Dunlap.

The following members of the New York Legislature have been appointed to serve on the "Affairs of Cities" Committee: Hinman, Davis, Meade, Davenport, Travis, Newcomb, Holden, Rose, McCarren, Ramsperger and Frawley.

Superintendents of Water Works have recently been elected as follows: James D. Burns, Salem, Mass.; James Barrow, Athens, Ga.; B. F. Stoltzfus, Laurel, Miss.; E. E. Wainwright, Hattiesburg, Miss.; M. H. Vandiver, Columbus, Miss., and E. L. Castenera, Biloxi, Miss.

Mayors have been elected by West Virginia cities as follows:

Keyser—Richard A. Welch for fifth term over S. N. Moore.

Funnelton—George Kerchival over Frank Hart.

Piedmont—M. J. Tierney, re-elected over Capt. Geo. W. Harrison.

Davis—J. Elton Hall over H. L. Best.

Paw Paw—George S. Filler, re-elected over S. D. Moser.

Hendricks—A. W. Windom.

Elk Garden—Robert Barrick.

South Keyser—D. B. Biser.

Williamstown—W. D. Kline over C. W. Dowling.

Cameron—C. E. Hutchinson over C. R. McCardle.

Pleasant Valley—S. S. Block over M. J. Fitzpatrick.

Woodsdale—J. N. Dowler, re-elected no opposition.

Edgwood—John M. Gibson, re-elected, no opposition.

West Liberty—M. T. Hartley, no opposition.

Patterson—Enoch Smith over D. N. Walter.

Fulton—James Noll, re-elected, over W. F. Thomas.

Elm Grove—Henry Stern over J. M. Butler.

Keystone—C. C. Hale.

Kimball—E. D. Lewis, no opposition.

Princeton—Mayor Lagenby.

Bramwell—J. A. Waddell, no opposition.

Crumpler—James Godfred.

North Fork—H. H. Huff.

Matewan—Hawk Bishop.

Welch—F. Cook, no opposition.

Brooklyn—George S. Snodgrass over E. D. Lappert.

Littleton—Dr. W. H. Lemley over J. F. Baker.

Farmington—Lee Toothman.

Monongan—O. J. Haymond, no opposition.

Fairview—C. F. McElroy.

Riverville—Clay Satterfield over Jasper Haught.

Barnesville—William Hall.

Ravenswood—Dr. Elder, re-elected, over Wiley McCoy.

West Milford—W. M. Lee, no opposition.

Bridgeport—J. D. Wilkinson.

Shinnston—W. H. Hursey.

Adamston—J. E. Kidd.

Wayne Court House—A. W. Ferguson.

Milton—J. M. Lewis.

Barboursville—James Brady.

Kenova—W. B. Morris.

Middlebourne—T. J. Selers.

Friendly—J. C. Thorn, no opposition.

## PROPOSALS

### ELECTRIC LIGHTING

Kenosha, Wis.

The city of Kenosha, Wis., is open for propositions for furnishing us electric street lighting. Can grant rights for electric commercial lighting for stores and dwellings, also power for factories. An excellent opportunity for any company that can furnish same at the right price.

We are also open for propositions to build us a municipal plant for our street lighting. Population 25,000. Address

Ald. PETER PIRSCH,  
Chairman of Committee.

### WATER WORKS SYSTEM

Office of the City Clerk.

Wichita, Kan.

Sealed proposals will be received at the office of the City Clerk until 7:30 o'clock p. m., March 15th, 1909, for the construction of a water works system for the city of Wichita. All work and materials to be done and supplied according to plans and specifications on file in the office of the City Clerk. All work to be done under the direction and supervision of a Special Engineer to be employed by the city. The work will be paid for in cash or four and one-half per cent., twenty-year bonds, at the option of the city. Plans and specifications were prepared by Engineer Hiram Phillips, of St. Louis, copy of which may be obtained by applying to the City Clerk upon deposit of twenty-five (\$25) dollars.

The estimated cost of the above improvement is approximately \$860,000. All bidders will be required to enclose certified check in the sum of \$10,000, as a guarantee of good faith. The Mayor and Council reserve the right to reject any and all bids.

(3-5) R. N. DORR, City Clerk.

### POLICE SIGNAL BOXES

Wilkes-Barre, Pa.

SEALED PROPOSALS will be received at the City Clerk's Office, Wilkes-Barre, Pa., until Friday, February 5th, 1909, at 12 o'clock, noon, for furnishing said city with two police alarm signal boxes of the very best type. Certified check in the sum of \$25 must accompany each proposal, together with sample of box to be furnished. Proposal to be addressed to Fred H. Gates, City Clerk, and endorsed "Proposal for Police Signal Boxes." The Joint Police Committee reserves the right to reject any or all bids.

D. W. JONES,

Joint Chairman.

### SEWER SYSTEM AND PUMPING PLANT

East St. Louis, Ill.

Proposals will be received by the Board of Local Improvements of the City of East St. Louis, Illinois, until 12 o'clock noon, February 17th, 1909, for the construction of a system of concrete and pipe sewers and a sewage pumping station as follows:

One pumping station building and appurtenances.

Five drainage and two sewage pumping engines to be vertical, single acting gas engines, direct connected to horizontal shaft, centrifugal pumps.

Thirty-three thousand and five hundred linear feet of sewers varying in diameter from 3 to 10½ feet.

The work will be paid for in cash or bonds. Specifications, plans, form of proposal and other information may be obtained from the Engineer of said city upon a deposit of \$5.

W. J. CROCKEN, City Engineer.